138. M. macrophylla. Giant-leaf magnolia. June. *w.* 30 to 35 f. ♄. Ky. *St.* Tenn. *Nutt.*
139. M. cordata. Heart leaf magnolia. May. *y.* 20 to 40 f. ♄. Ky. *St.*
140. M. acuminata. Cucumber tree. June. *b.--y.* 70 f. ♄. Eastern part of Ohio. Bark tonic. The cones yield an anti-rheumatic, stimulating quality to alcohol.
141. M. auriculata. Ear-leaf magnolia. May. *y--w.* 30 to 40 f. ♄. Ky. *St.*
142. M. grandiflora. Big laurel. Magnolia. May. *w.* 60 to 80 f. ♄. Louisville. *M'Murt.*
143. Liriodendron tulipifera. Tulip tree. White wood. Tulip bearing poplar. Jul. *y--g.* 60 to 90 f. ♄. W. Tonic, antiseptic. Bart. Med. Bot. I. 91.

XXI. *LAURINEÆ.*—The cinnamon tribe.

144. Laurus benzoin. Benzoin. Spice wood. Fever bush. Ap. *y.* 6---10 f. ♄. Woods. W. Aromatic. stimulant, tonic. Bart. ii. 91.
145. Laurus sassafras. Sassafras. April. *y.* 5---50 f. ♄.—Woods. W. Stimulant, demulcent, diaphoretic.

XXII. *BERBERIDEÆ.*—The barberry tribe.

146. Berberis vulgaris. Barberry. Ap. *y.* 4--6 f. ♄. rs.—Tenn. *Nutt.* Acid astringent.
147. Leontice thalictroides. *Lin.* Blue cohosh. Poppoose root. Ap. *g--y.* 1 f. ♃. sw. O. Ky. Bitter, diuretic, preparatory parturient. The root.

XXIII. *MENISPERMEÆ.* The cocculus tribe.

148. Menispermum canadense. Moonseed. Yellowparilla. Jul. *g—y.* Vine ♄. bt. O. Ky. Tonic, diuretic, alterative. The root.
149. M. similacinum. Jul. *y.* Vine. ♄. Ky. *St.*
150. M. lyoni. Ju. ♃. Ky. and Tenn. *Lyon.*

XXIV. *MALVACEÆ.* The mallow tribe.

Generally possess mucilaginous, demulcent properties.

151. Sida abutilon. Indian mallows. Jul. *y.* 4 f. ☉. rd. W.
152. S. dioica. Sept. *w.* 4 to 7 f. ♃. md. Miami country, O.
153. S. spinosa. Jul. *y.* 1 to 2 f. ☉. rd. W.
154. S. alcæoides. Jul. ♃. Stonny fields of Ky. and Tenn. *Pursh.*
155. Nuttallia digitata. May. *r.* 3 to 4 f. ♃. Pawnee villages.
156. Hibiscus militaris. Martial hibiscus. Aug. *w—y.* 4 to 6 f. ♃. Wet woods. O. Ky.

157. H. moscheutus. Aug. *w*—*p*. 4 to 6 f. Swamps, Ky. *St.*
158. H. palustris. Marsh hibiscus. Aug. *p*. 3 to 4 f. 4. mh. Louisville. *M'Murtrie*. It is probable that Dr. M'Murtrie mistook one of the preceding for this. See his picture of Louisville. Appendix.
159. H. grandiflorus. Large flowering hibiscus. Aug. *r*. 5 to 7 f. 4. Arkan. *Jus.*
160. Malva rotundifolia. Low mallows. June—Oct. Whitish pink. Prostrate. 4. rd. W. Naturalized. Medicinal.

XXIX. *TILIACEÆ.* The linden tribe.

161. Tilia glabra. Bass-wood. Linn. Linden. June. *w*. 60 f. ♄. Woods. Emollient.
162. T. pubescens. Crop-ear bass-wood. June. *w*. 60f. ♄. Riv. banks. W.
163. T. heterophylla. Various leaved bass-wood. June. ♄. Banks of the Ohio and Mississippi. *Pursh.*

XXXVI. *HYPERICINEÆ.* The tutsan tribe.

164. Hypericum pyrimidatum. Giant hypericum. Jul. *y*. 3 to 6 f. 4. Wor. O.
165. H. prolificum. June—Aug. *y*. 1 to 3 f. ♄. dp. O. Ky.
166. H. kalmianum. Kalm's shrubby hypericum. Jul. *y*. 3 to 5 f. ♄. Lake Huron. *Eat.*
167. H. galioides. Jul. *y*. 2 f. ♄. Darby Plains, O.
168. H. perforatum. St. John's wort. Jul. *y*. 1 f. 4. Fields. W. Introduced? Healing, pectoral.
169. H. corymbosum. Level-top hypericum. Jul. *y*. 18 to 24 i. 4. W.
170. H. parviflorum. Low centaury. Small flowered hypericum. Jul. *y*. 6 to 10 i. 4. wp. O. Ky.
171. H. densiflorum. Many flowered hypericum. Jul. *y*. 2 f. ♄. Darby Plains, O.
172. H. virginicum. Virginian hypericum. Aug.—Sept. *y*. 2 f. 4. Wet woods. Wor. O.
173. H. canadense. Canadian hypericum. June—Aug. *y*. 6 to 12 i. ☉. Detroit. *Eat.*
174. H. rosmarinifolium. Rosemary-like hypericum. Jul. *y*. 2 to 4 f. ♄. Low grounds. St. L. *Bk.*
175. H. frondosum. Jul. *y*. ♄. rs. Ky. and Tenn. *Pursh.*
176. H. dolabriforme. Jul. *y*. 4. dry hills, Ky. *Michx.*
177. H. triplinerve. Aug. *y*. 4. Banks of the Ohio. *Michx.*
178. H. sphærocarpum. *y*. 4. Ky. *Michx.*
179. H. procumbens. *y*. Dry hills, Ky. *Michx.*
180. Ascyrum crux-andreæ. St. Peter's wort. Jul. *y*. 1 f. 4. Sandy fields, Ky. *St.*
181. A. stans. *Michx.* Jul.—Aug. *y*. 1 to 2 f. 4. Louisville. *M'Murtrie.*

182. Sarothra gentianoides. Pine weed. Nit weed. Orange grass. June. *y—p.* 4 to 8 i. ⊙. Ky. *St.*

XXXVIII. *SAXIFRAGEÆ.* THE SAXIFRAGE ORDER.

All plants of this order are more or less astringent.

183. Saxifraga pennsylvanica. Large saxifrage. Water saxifrage. May—June. *y—g.* 2 to 5 f. 4. md. mh. Wor. O.
184. Saxifraga virginiensis. Early saxifrage. Ap. May. *w.* 4 to 12 i. 4. rs. W.
185. Heuchera americana. Alum root. June. *r.* 2 to 3. 4. rs. W. Powerfully astringent. Bart. Med. Bot. ii. 159.
186. H. pubescens. May, June. *r—y.* 2 f. 4. Ky. *St.*
187. H. caulescens. June. *w.* 4. Ky.
188. H. acerifolia. 4. Ky.
189. Chrysosplenium oppositifolium. Golden saxifrage. Water carpet. Ap. *g.* creeping. 4, Springs, &c. Near Chilicothe, O.
190. Mitella diphylla. Currant leaf. False sanicle. May. *w.* 8 to 10 i. 4. rs. W.
191. M. cordifolia. June. 6 to 8 i. 4. Detroit. *Eat.*
192. Tiarella cordifolia. Mitre-wort. May. *w.* 8 to 10 i. 4. sw. rs. Ky. *St.*
193. Parnassia americana. Flowering plantain. Parnassus grass. Sept. *w.* 12 to 13 i. 4. wp. O. Mich.
194. Itea virginica. June. *w.* 4 to 8 f. ♄. Louisville, *M'Murt.*

XLII. *HAMAMELIDEÆ.*—THE WITCH-HAZEL TRIBE.

195. Hamamelis virginica. Witch-hazel. Nov. *y.* 6 to 12 f. ♄. Woods. O. Ky. Astringent, sedative.

XLIII. *PHILADELPHIÆ.*—THE MOCK ORANGE TRIBE.

196. Philadelphus hirsutus. Hairy syringa. *w.* ♄. Tenn. *Nutt.*

XLV. *GROSSULACEÆ.*—THE CURRANT TRIBE.

197. Ribes hirtellum. Wild gooseberry. May. *g.* 2–3 f. ♄. rs. Wor. O.
198. R. oxycanthoides. Smooth gooseberry. May. *y.* 3 f. ♄. rs. Louisville, *M'Murt.*
199. R. cynosbati. Prickly gooseberry. Ap.—June. *w—g.* ♄. Ky. *St.*
200. R. floridum. Wild black currant. Ap.—May. *y.* 3–4 f. ♄. Hedges. Covington, Ky.
201. R. albinervum. Ap.—May. *g—y.* ♄. Sources of the St. Croix river. *Houghton.*

XLVI. *CACTEÆ.*—The Indian fig tribe.

202. Cactus opuntia. Prickly pear. June. *y.* ♄. Sandy Banks. Ky. Ill.
203. C. ferox. Jul. *y--r.* 4. Arid plains. Mo. Ter. *Nutt.*
204. C. viviparus. Jul. *r.* 4. Mo. Ter. *Nutt.*
205. C. mamillaris. Mo. Ter. *Nutt.*

XLVII. *ONAGRARIÆ.*—The evening primrose order.

206. Epilobium spicatum. Willow herb. Jul. *p.* 3 to 5 f. 4. New meadows. W. *Bk.* Root emollient, slightly astringent, anti-dysenteric.
207. E. coloratum. Jul. *p.* 3 to 4. 4. wp. md. W. *Bk.* Ky. *St.*
208. E. palustre. Marsh willow herb. Aug.---Sept. Pale *r.* 2 to 3 f. 4. wp. br. O.
299. E. lineare. Jul. *w---r. w.* 1 to 2 f. wp. O. Two miles south of Columbus, eight miles east of Dayton.
210. Gaura biennis. Virginian loosestrife. Jul.---Aug. *r.* 2 to 3 f. ♂. dp. O. Ky. *St.* Near St. L. *Bk.*
211. G. mollis. Jul.---Aug. *r.* 3 f. dp. O?
212. Œnothera biennis. Evening primrose. Scabish. Tree primrose. June.--Sept. *y.* 3 to 5 f. ♂. Fields, &c. W.
213. Œ. muricata. Jul.---Aug. *y.* 1 to 2 f. ♂. Fields. O. Ky.
214. Œ. grandiflora. Large flowering evening primrose. Jul.---Aug. *y.* 2 to 3 f. ♂. Fields. Ky. *St.* Figured in Bart. Fl. N. A. i. 20.
215. Œ. tetragona. 4. Ky? *St.*
216. Œ. sinuata. June. *y.* 1 to 6 i. 4. Mound near St L. *Bk.*
217. Œ. albicaulis. White-stem evening primrose. Jul. *w.* 3f. 4. Plt. Mo. Ter. *Nutt.*
218. Œ. pinnatifida. June. *w.* 6 to 24 i. ♂. White river, Mo. Ter. *Nutt.*
219. Œ. cæspitosa. Jul. *w---r.* 4. White riv.
220. Œ. serrulata. June. *y.* Plt. Mo. Ter. *Nutt.*
221. Œ. macrocarpa. Aug. *y.* ♂. Mo. near St. L. *Nutt.* Near Lead mines. *Bk.*
222. Œ. viscosa. Lousville, *M'Murtrie.*
223. Œ. fruticosa. Sundrops. Shrubby œnothera. Jul. *y.* 12 to 18 i. 4. ♄ ?. dp. Near Columbus, O.
224. Jussieua leptocarpa. *y.* ☉ Mo. Ter. *Nutt.*
225. J. subacaulis. June. *y.* 4. Mo. Ter. *Lewis.*
226. Ludwigia alternifola. Seed box. Jul. *y.* 1 to 3 f. 4. mh. O. Ky.

227. L. decurrens. Aug. *y.* 2 f. ⊙. Louisville. *M'Murt.*
228. Isnardia palustris. Water purslane. June. *g.* Creep. 4. Mud, &c. O. Ky.

XLVIII. *HALORAGEÆ.*—The hippuris tribe.

229. Hippuris vulgaris. Marestail. Aug. *y—g.* 12 to 18 i. 4. pl. Ky. *St.*
230. Callitriche verna. Water chickweed. May—Aug. *w.* Floating. 2 to 3 f. long. Shallow streams. Ky. *St.*
231. Myriophyllum verticillatum. Water milfoil. Jul. 18 i? 4. pl. Plt. *Jas.* Cin. O.

XLIX. *CIRCŒACEÆ.*—Order of the enchanter's night shade.

232. Circœa lutetiana. Enchanter's night shade. Jul. *w.* 1 to 2 f. 4 sw. W.
233. C. alpina. Jul. *r—w.* 4 to 8 i. 4. sw. Wor. O.

LI. *LOASEÆ.*

234. Bartonia ornata. *Nutt.* Barton's flower. *y—w.* 2 to 4 f. 4? sr. Mo. Ter. *Nutt.* Figured: Bart. Fl. N. A. iii. 29.
235. B. nuda. *y—w.* 4. Mo. Ter. near the Great Bend of the Missouri. *Nutt.*
236. Mentzelia aurea. *y.* 12 i. Near the Lead Mines of St. Louis. Plt. riv. *Nutt.*

LII. *SALICARIÆ.*—The grass poley tribe.

237. Cuphea viscosissima. Wax bush. Sept. *p.* 12 to 18 i. ⊙. W. Figured. Bart. Fl. N. A. i, 62.
238. Lythrum hyssopifolium. Dwarf grass poley. Aug. *p.* 12 to 24 i. 4. wp. W.
239. L. alatum. Jul. *p.* 2 to 3 f. 4. mh. St. L. *Bk.*
240. L. virgatum. Jul. *p.* 4. Louisville. *M'Murtrie.*
241. Decodon verticillatum. *Elliot.* Grass poley. Swamp willow herb. Aug. *p.* 2 to 4 f. 4. mh. or wet places. Ohio near Dayton. Louisville. *M'Murt.* Ky. *St.*
242. Ammannia humilis. Aug. *b.* 4 to 8 i. ⊙. Damp ground. Ky. *St.*

LIV. *MELASTOMACEÆ.*—The meadow beauty order.

243. Rhexia virginica. Meadow beauty. Deer grass. Jul. *p.* 1 to 2 f. 4. Ky. *St.* Mo. *Bk.* Figured. Bart. Fl. N. A. i. 12.

244. Rhexia mariana. Jul. *w—r.* 1 to 2 f. 4. Ky. *St.* Fig. Bart. Fl. N. A. i. 96.

LIX. *ELÆAGNEÆ.*—The oleaster tribe.

245. Elæagnus argentea. The silver oleaster. Ju. ♄. 8 to 12 f. Mo. Ter. *Nutt.*

246. Shepherdia canadensis, *Nutt.* Sea buck thorn. Jul. 6 to 8 f. ♄. Mich. *Eat.*

247. S. argentea. Rabbit berry. 12 to 18 f. ♄. Plt. *Jas.*

LXII. *ARISTOLOCHIÆ.*—The birthwort tribe.

248. Aristolochia sipho. Birthwort. Dutchman's pipe. June. Flowers brown. Vine 30 to 40 f. ♄. rs. Pittsburgh. Louisville, *M'Murtrie.*

249. A. serpentaria. Virginia snakeroot. June. Brownish *p.* 8 to 12 i. 4. sw. O. Ky. Stimulant, tonic, diaphoretic, diuretic. Big. Med. Bot. iii. 82. Bart. Med. Bot. ii. 41.

250. Asarum canadense. Wild ginger. Coltsfoot snakeroot. Ap. *p.* 3 to 4 i. 4. ow. sw. W. Aromatic stimulant, tonic, diaphoretic. Big. Med. Bot. i. 179. Bart. Med. Bot. ii. 85.

LXIV. *SANTALACEÆ.*—The sanders-wood tribe.

251. Nyssa multiflora. Sour gum. Black gum. Ju. *g.* 30 to 50 f. ♄. Woods. W.

252. N. biflora, *Walt.* Tupelo tree. Swamp horn bean. Ju. 30 to 50 f. ♄. Ky. *St.*

253. N. tomentosa. May. ♄. Ky. *St.*

254. Thesium umbellatum. Bastard toad-flax. Jul.–Aug. *w.* 8 to 12 i. 4. rs. W.

LXV. *THYMELEÆ.*—The mezereum tribe.

255. Dirca palustris. Moose wood. Leather wood. Ap. *y.* 2 to 4 f. ♄. Woods. O. Stimulant, acrid, vesicatory.

LXXII. *SANGUISORBEÆ.*—The burnet tribe.

256. Sanguisorba canadensis. Burnet saxifrage. Aug.–Oct. *w.* 2 to 4 f. 4. wp. Dayton, Columbus, O. Slightly astringent and tonic.

LXXIII. *ROSACEÆ.*—The rose tribe.

§ 1. Potentilleæ.—*Strawberry like.*

257. Potentilla canadensis. Cinquefoil. Five-finger. Ap.–

May. *y.* Trailing. 4. ow. O. Ky. Astringent, &c. One of Thompson's medicinal plants.

258. P. simplex. Erect cinquefoil. May–Aug. 8 to 12 i. 4. ow. Wor. O. St. L. *Bk.*

259. P. norwegica. Norway cinquefoil. June–Aug. *y.* 8 to 18 i. ⊙. O.

260. P. hirsuta. Hairy cinquefoil. Jul. *y.* ⊙. Wor. O.

261. P. fruticosa. Shrubby cinquefoil. June–Sept. *y.* 2 f. ♄. wp. Mich. O.

262. P. pennsylvanica. June. *y.* 1 to 2 f. 4. Detroit. *Eat.*

263. P. argentea. Silver five-finger. Jul. *w–y.* 4 to 10 i. 4. Prairies near St. L. *Bk.*

264. P. supina. June–Aug. *y.* ⊙. Creeping on the ground. Mich. *Eat.* W. *Bk.*

265. Comarum palustre. Marsh five-finger. Jul. *p.* 12 to 18 i. 4. mh. bogs. Louisville, *M'Murtrie.* An active astringent. *Eat.*

266. Fragaria virginiana. Wild strawberry. May. *w.* 4. O. Ky.

267. F. canadensis. Mountain strawberry. Ap.–May. *w.* 4. Mich. *Eat.* Ky. *St.*

268. Dalibarda repens. Spice root. False violet. June. *w.* Creeping. 4. Wor. O.

269. D. fragaroides. Dry strawberry. May. *y.* 3 to 4 i. 4. Woods. Wor. Cin. O.

270. Agrimonia eupatoria. Agrimony. Jul. *y.* 2 f. 4. wp. ow, if damp. O. Ky. Astringent, corroborant, deobstruent, Hoop. Med. Dic. Raf. Med. Fl., &c.

271. A. parviflora. Small flowered agrimony. Aug. *y.* 1 to 2 f. 4. ow, if dry. O. Ky. Properties like the last.

272. A. suaveolens. Jul. *y.* 5 f. 4. Borders of marshes. St. L. *Bk.*

273. Geum strictum. Upright avens. Yellow avens. Aug. *y.* 2 f. 4. West Va. *Paddock.*

274. G. virginianum. Avens. Virginian avens. June–Jul. *w.* 2 f. 4. sw. ow. W. Medicinal. Astringent.

275. G. album. White avens. June–Jul. *w.* 2 f. 4. Prairies 12 miles E. Wor. O.

276. *G. ciliatum. Jul. y—p. 12 to 18 i. md. O.*

277. G. rivale. Purple avens. Water avens. Evinroot, in New York. May–June. *p.* 18 i. Said to grow in the northern part of Ohio. Astringent, tonic. In New York the root sometimes substitutes coffee.

278. Rubus strigosus. Red raspberry. May. *w.* 3 to 5 f. ♄. O. Mildly astringent. The leaves are used.

279. R. occidentalis. Black raspberry. Wild raspberry.

Monthly raspberry. May–Jul. May–Oct. *w.* 2 to 5 f. ♄. ow. W.

280. R. villosus. Blackberry. June. *w.* 4 to 6 f. ♄. ow. &c. W. Astringent. See Big. Med. Bot.

281. R. trivialis. Low blackberry. Dewberry. May–June. *w.* Mostly trailing. ♄. ow. &c. O. Ky. Properties similar to the last.

282. R. idæus. Raspberry. June. *w.* 3 to 5 f. ♄. Fruit red. ow. Ky. St. Mo. Ter. *Jas.* Britain. *London.*

283. R. parviflorus. Small flowering bramble. *w.* ♄. Mich. *Eat.*

284. R. odoratus. Flowering raspberry. Wild mulberry. Ju. *p.* 3 to 4 f. ♄. rs. O. Ky.

285. Sibbaldia procumbens. Ap. *y.* Procumbent. 4. Mo. Ter. *Nutt.*

§ 2. Roseæ.—*Rose like.*

286. Rosa rubifolia. Climbing rose. Ohio multiflora. Jul. *r,* changing to *w.* The rose referred to is very common on the borders of the Ohio prairies. It sometimes appears as a shrub 5 or 6 feet high; more frequently it climbs as a woody vine to the height of 15 or 20 feet. Its magnificent appearance when in full bloom is almost unequalled. O. Ky. Lake shores.

287. R. blanda. Jul. *r.* 5 to 8 f. ♄. Mar. O.

288. R. rubiginosa. Sweet-briar. Eglantine. July. Pale *r.* 3 to 10 f. ♄. Hedges, &c. Ky. O.

289. R. parviflora. Small-flowered rose. Ju.–July. *r.* 3 f. ♄. Woods. W.

290. R. carolina. June–Jul. *r.* 3 to 8 f. ♄. Swamps. Mo. *Beck.*

291. R. lucida. Jul. *r.* 3 to 4 f. ♄. Louisville, *M'Murt.*

§ 3. Spiræaceæ.—*Meadow-sweet like.*

292. Spiræa salicifolia. Willow-leaved spiræa. Jul. *w.* 2 to 4 f. ♄. md. wp. W.

293. S. tomentosa. Hard-hack. Jul.–Aug. *p.* 2 to 3 f. ♄. Ky. *St.*

294. S. opulifolia. Nine-bark. June–Jul. *w.* 3 to 6 f. ♄. sr. Wor. O. Ky.

295. S. betulifolia. Birch-leaved spiræa. June. *r.* 1 f. ♄. Ky. St.

296. S. aruncus. Goats-beard. Steeple-weed. June. *w.* 2 to 6 f. 4. Mar. O. Ky.

297. S. lobata. Meadow-sweet. Pride of the prairie. June. *r.* 2 to 4 f. 4. wp. O.

298. Gillenia trifoliata. Indian physic. Gillenia. June. *w.* 2 to 3 f. 4. sw. Morgantown, Va. *Paddock.* Emetic, emeto-cathartic, diaphoretic. Big. Med. Bot. iii. 10. Bart. Med. Bot. i. 65.
299. G. stipulacea. Western gillenia. American ipecac. Ju.-Jul. *w.* 2 to 4 f. 4. Woods. W. Properties similar to the last. Fig. Bart. Med. Bot. i. 71.

LXXIV. *POMACEÆ.*—The apple tribe.

300. Aronia arbutifolia. Red choak-berry. May–June. *w–r.* 2 to 4 f. ♄. Louisville, *M'Murt.*
301. A. botryapium. Shad bush. June berry. Service berry. Ap. *w.* 8 to 30 f. ♄. O. Ky.
302. A. melanocarpa. Black choak-berry. May–June. *w.* 4 to 6 f. ♄. Bogs, &c. Ky. *St.*
303. A. sanguinea. Bloody choak-berry. May. *w.* 4 to 6 f. ♄. W. *Pursh.*
304. A. alnifolia. Alder-leaved service berry. May. 4 to 5 f. ♄. Mo. Ter. *Nutt.*
305. Crategus coccinea. Thorn bush. Red haw. May. *w.* 5 to 15 f. ♄. Woods. O. Ky.
306. C. crus-galli. May. *w.* 5 to 20 f. ♄. W.
307. C. populifolia. Ap. *w.* ♄. Ky. *St.*
308. C. pyrifolia. Pear-leaf thorn. June. *w.* ♄. Michigan, *Beck.* O.
309. C. punctata. Thorn tree. May. *w.* ♄. O.
310. C. glandulosa. May. *w.* ♄. O.
311. C. spathulata. Ap. *w.* 10 to 12 f. ♄. O.
312. C. apiifolia. Ap. *w.* 4 to 12 f. ♄. O.
313. Sorbus americana. Mountain ash. May. *w.* 10 to 20 f. ♄. Near Lake Huron, *Houston.*
314. Pyrus coronaria. Crab apple. May. Pale *r.* 15 to 20 f. ♄. W.

LXXV. *AMYGDALEÆ.*—The almond tribe.

315. Prunus virginiana. Black cherry. Wild cherry. May. *w.* 30 to 60 f. ♄. Woods. W. Tonic, anodyne. Big. Med. Bot.
316. P. pennsylvanica. Red cherry. Wild red cherry. Ap.-May. *w.* 8 to 20 f. ♄. Ky. *St.*
317. P. serotina, *De Cand.* Choke cherry tree. June. *w.* 20 to 60 f. ♄. Ky. *St.*
318. P. depressa. Sand cherry. May. *w.* 2 to 6 f. ♄. River banks, Ky. *St.* Fruit black, agreeable.
319. P. americana. Meadow plum. Wild red plum. Yellow

plum, *Beck.* May. *x.* 10 to 12 f. ♄. md. Prairies, &c. O.

320. P. chicasa. Summer plum. May. *w.* 10 to 15 f. ♄. Ky. *St.* Ark. *Jas.*

LXXVII. *LEGUMINOSÆ.*—The pea tribe.

321. Baptisia alba. Prairie indigo. Jul. *w.* 2 to 4 f. 4. dp. Central Ohio. Medicinally a substitute for B. tinctoria. *Dr. Jones.*

322. B. cœrulea. Blue flowered indigo. Spiked indigo weed. Jul. *b.* 2 to 3 f. rb. 4. Ky. Cin. O.

323. B. tinctoria. Wild indigo. Jul.–Aug. *y.* 2 to 3 f. 4. Ky. *St.* Astringent, antiseptic, cathartic, emetic, stimulant. Beach. Mat. Med. Raf. Med. Fl.

324. B. bracteata. Ap. *w.* 2 f. 4. St. L. *Nutt. Jas.*

325. Sophora sericea. *w.* 4. 1 f. Plt. *Jas.* Mo. Ter. *Nutt.*

326. Medicago lupulina. Hop medick. None-such. Ju.–Aug. *y.* Procumbent. ○. Throughout the U. S. *Bk.* Introduced.

327. Psoralea eglandulosa. June. *p.* 12 to 18 i. 4. O. Ky. Tenn. *Nutt.*

328. P. cuspidata. 4. Mo. Ter. *Nutt.*

329. P. esculenta. Bread root. June. *b.* 12 to18 i. 4. Various part of Mo. Ter. Lead Mines near St. Louis, *Nutt.* The root is an important article of diet to the Western Indians.

330. P. incana. Jul. *b.* 12 i. 4. Open plains, Mo. Ter. *Nutt.*

331. P. lanceolata. Aug. *w–b.* 1 f. 4. Plt. *Nutt.*

332. P. onobrychis. 3 to 5 f. Near St. L. *Nutt.*

333. P. canescens. June. *y.* 2 to 3 f. 4. St. L. *Jas.*

334. P. jamesii. 4 i. St. L. *Jas.*

335. Trifolium repens. White clover. May–Oct. *w.* 6 to 12 inches long, creeping. 4. Valuable in pastures.

336. T. procumbens. Yellow clover. June. *y.* Procumbent, 3 to 6 inches long. Dry fields, Ky. *St.* Mar. O.

337. T. stoloniferum. Running buffalo clover. Ju. *w.* Creeping, 4 to 8 inches long. 4. Fields, ow., &c. O. Ky.

338. T. reflexum. Buffalo clover. June. *r.* Procumbent, 12 to 18 i. Dry hills, Ky. *St.* Wor. O. Great Lakes.

339. T. pratense. Red clover. May. *r.* 2 to 3 f. 4. md. Introduced. W. A valuable artificial grass.

340. Lespedeza capitata. July–Aug. *p.* 2 to 3 f. 4. dp. ow. O. Ky.

341. L. violacea. Jul. *p.* 1 to 2 f. 4. dp. Ky. Mar. O.

342. L. procumbens. Aug.–Sept. *p–y.* Procumbent, 2 to 4 f. 4. Sandy woods, Ky. *St.*

343. L. prostrata. Aug. *p.* 4. Sandy soils, Ky. *St.*
344. L. augustifolia. Sept. *w–p.* 3 to 4 f. 4. Sandy soils, ow. dp. Col. Mar. O.
345. L. polystachia. Aug.–Sept. *r–w.* 2 to 4 f. 4. dp. ow. O.
346. L. divergens. Jul. *p.* 1 to 2 f. 4. dp. Darby Plains, Cin. O.
347. L. reticulata, *Bk.* Bush clover. Aug. *p.* 2 f. 4. Dry woods, Ill. *Bk.*
348. Hedysarum canadense. Canadian trefoil. Jul. *p.* 3 to 4 f. 4. dp. ow. W.
349. H. lævigatum. Smooth trefoil. Aug. *p.* 3 to 4 f. 4. dp. Woods. O.
350. H. rotundifolium. Round leaved trefoil. Aug. *p.* Prostrate, 2 to 3 f. long. 4. rs. O. Ky.
351. H. paniculatum. Aug. *p.* 3 f. 4. ow. O.
352. H. rigidum. Rigid trefoil. Aug. *p.* 3 f. 4. Mar. O.
353. H. acuminatum. Broad-leaf trefoil. Jul.–Aug. *p.* 1 to 2 f. 4. sw. Ky. O.
354. H. nudiflorum. Naked-flowered trefoil. Aug. *p.* 1 to 2 f. ☉. sw. Ky. O.
355. H. viridiflorum, *Bk.* Green-flowered trefoil. Jul. *g–p.* 3 to 4 f. 4. sw. Ky. *St.*
356. H. aikinianum, *Bk.* Aikin's trefoil. Jul.–Aug. *r–p.* 3 f. 4. ow. O. Ky.
357. H. glutinosum. Sticky trefoil. Jul. *p.* 4. Ky. *St.*
358. H. pauciflorum. Few-flowered trefoil. *w.* 4. Decumbent. W.
359. H. boreale, *Nutt.* Alpine trefoil. June–Jul. *p.* 4. Mountains, &c. Mo. Ter. *Nutt.*
360. H. glabellum. Jul.–Sept. *p.* 1 to 2 f. 4. Damp woods, one mile E. from Monroe, O. Detroit, *Eat.* Perhaps the most elegant plant of the genus.
361. H. obtusum. Blunt-leaf trefoil. Aug. *p–g.* 1 to 2 f. 4. ow. dp. Mi. O.
362. H. strictum. Branchless trefoil. Jul. *p.* 2 to 4 f. 4. dp. Middletown, O.
363. H. marilandicum. July–Aug. *p.* ☉. Dry fields and woods. Louisville, *M'Murt.*
364. Galega virginiana. Goat's rue. Jul. *r. y. w.* 1 f. 4. Barrens. Throughout U. S. *Bk.*
365. G. hispidula. May. *r.* 2 f. 4. Ky? *St.*
366. Astragalus canadensis. Milk vetch. June. *y.* 2 f. 4. Banks of streams. W.
367. A. missouriensis, *Nutt.* May. *p.* 6 i. Hills. Mo. Ter. *Nutt.*
368. A. galegoides. *w.* 2 f. Mo. Ter. *Nutt.* Near Zanesville, O!

369. A. hypoglottis. May. Mo. Ter. *Nutt.*
370. A. laxmanni. June. *b.* 1 f. 4. Hills, Mo. Ter. *Nutt.*
371. A. carnosus. June. *b–p.* 2 f. Plains. Mo. Ter. *Nutt.*
372. A. gracilis. May. *p.* 2 f. 4. Plains, Mo. Ter. *Nutt.*
373. Stylosanthes elatior. Pencil flower. Aug. *y.* 9 to 10 i. 4. Louisville, *M'Murt.*
374. Petalostemon violaceum. Aug. *r–p.* 4. Ky. *St.* Mo. Ter. *Nutt.*
375. P. candidum. Jul. *w.* 4. Tenn. Ill. Mo. *Pursh.* Ky. *St.*
376. P. macrostachyum. *w.* 2 f. 4. Plt. *Jas.*
377. Dalea aurea. Jul. *y.* 2 f. 4. Gravelly hills, Mo. Ter. *Nutt.*
378. D. laxiflora. Jul. *w.* 6 f. 4. Prairie du Chien, *Nutt.*
379. D. formosa. *p.* ♄. Plt. *Jas.*
380. D. alopecurioides. Jul. *b.* 1 f. ☉. Mississippi River, *Pursh.*
381. Phaca villosa. Jul. *y.* 4. Hills, Mo. river, *Nutt.*
382. P. triphylla. May. 4. Mo. Ter. *Nutt.*
383. Orobus dispar. Bitter vetch. June. *w–y.* 4. Plt. *Jas.*
384. O. longifolius, *Nutt.* May. *r.* 4. Sandy hills, Mo. Riv. Plt. *Nutt. Jas.*
385. Oxytropis lambertii. June. *p.* 4. Plt. *Nutt. Jas.*
386. Thermia rhombifolia. March? *y.* 8 to 12 i. 4. Plt. *Nutt. Jas.*
387. Glycyrrhiza lepidota. American liquorice. Jul. *w.* 3 to 5 f. 4. bt. St. L. *Bradbury.* Mo. Ter. *Nutt. Jas.* Expectorant, demulcent. The root probably a substitute for the officinal liquorice. Disp. Wood and Bache. 322.
388. Trigonella sericea. American fenugreek. Jul. *w–r.* 1 f. ☉. bt. Plt. *Nutt.* Medicinal? Duncan's Disp. 319.
389. Amorpha fruticosa. Jul. 6 f. ♄. Ky. *St.* Plt. *Jas.*
390. A. nana. May. *p–b.* 9 i. ♄. Grassy, woodless hills. Plt. *Nutt.*
391. A. canescens. Lead plant. Mineral plant. July? *b.* 18 i. ♄. St. L. *Nutt.* Plt. *Jas.* This plant is said to grow only in the immediate neighborhood of lead mines.
392. Virgilia lutea. Virgil's tree. June. *y.* Tall tree. *St.* Ky. *St.* Tenn. *Nutt.* The bark affords a yellow dye. *Eat.*
393. Robinia pseudacacia. Locust tree. Black locust. False acacia. May. *w.* 30 to 50 f. ♄. bt. Woods. W.
394. Clitoria mariana, *Lin.* July–Aug. *b.* Climbing. 4. bt. &c. O?
395. Clitoria virginiana. Aug. *p.* Climbing. 4. Hedges.

Ky. *St.* Flowers larger than those of any other North American plant of this order.

396. Amphicarpa monoica. Jul. *b. w.* Twining. 3 to 4 feet long. ⊙. ow. O. Ky.

397. A. comasa. Jul. *p.* Prostrate and climbing. 3 to 5 f. 4. Prairie near Middletown, O.

398. A. sarmentosa. Aug. *w.* Prostrate. ow? O?

399. Apios tuberosa. Ground-nut. Jul. *p.* Twining, 2 to 6 f. 4. bt. ow. &c. O. Ky. Root tuberous and nutritious.

400. Phaseolus perennis. Wild bean. Jul. *p.* Twining. 4. ow. W. *Bk.* Ky. *St.*

401. Strophostyles helvolus. July–Aug. *p.* Climbing or prostrate. 4. Sandy fields. W. *Bk.*

402. S. diversifolius. Aug. *p.* Prostrate, 3 to 4 f. ⊙. Prairie near Hamilton, O. Woods. *Bk.*

403. Wistaria frutescens. Wistar's vine. *b–p.* Climbing. ♄. Ill. *Eat.*

404. Lupinus perennis. Wild lupine. May. *b.* 1 f. 4. W. *Bk.* Louisville, *M'Murt.*

405. L. pusillus. Stinted lupine. June. *b.* 4 to 6 i. ⊙. or ♂. White River, Mo. Ter. *Nutt.*

406. Lathyrus decaphyllus. *p.* 4. Plt. *Jas.* Grassy plains, Mo. Ter. *Nutt.*

407. L. venosus. Vein-leaved vetchling. July–Aug. *p.* 4. wp. With grasses, &c. Mich. *Eat.* O.

408. Vicia americana. American vetch. May–June. *p.* Seldom erect. 4. rb. sw. &c. O. Mo. Ter. W.

409. V. cracca. Tufted vetch. Aug. *p–w.* 4. md. Ky. *St.*

410. V. caroliniana. Carolinian vetch. May–June. *w.* Climbing. 4. Mountains, &c. Mich. *Eat.*

411. V. sativa. Tare. Common vetch. June. *b.* 1 to 2 f. ⊙. cf. Intr. W?

412. Pisum maratimum, *Lin.* Beach pea. May–July. *b–p.* 4. Shores of the Great Lakes. *Nutt.*

413. Darlingtonia brachyloba. Darlington's plant. 4. Ky. &c. *Eat.* Prairies, Ill. Ky. *Pursh.*

414. D. glandulosa. 4. Tenn. *Eat.* Banks of Tenn. and Miss. *Pursh.*

415. Schrankia uncinata. Sensitive briar. Jul. *p.* 2 to 3 f. 4. Plt. *Jas.* Near Potosi, Mo. *Bk.*

416. Cassia marilandica. American senna. Wild senna. July–Aug. *y.* 3 to 4 f. 4. bt. W. Purgative. Big. Med. Bot. i. 166.

417. C. chamæcrista. Prairie senna. Partridge pea. July–Aug. *y.* 1 to 2 f. ⊙. dp. Sandy places. O. Ky.

Abundant on Darby Plains, three miles S. from Milford. The leaves of this plant are probably superior to the last, for medicinal use. Leaves sensitive.

418. C. nictitans. Winking cassia. Wild sensitive plant. Ju.–July. *y.* 1 f. ☉. Sandy places. rb. Mar. O. Ky.
419. C. tora. Jul. *y.* 3 f. ☉. Ky. *St.*
420. C. aspera. Rough cassia. ☉. 1 to 3 f. Ky. *St.*
421. Gymnocladus canadensis. Coffee bean. Coffee tree. May–June. *w.* 30 to 50 f. ♄. O. Ky.
422. Gleditschia triacantha. Honey-locust. June. *w* or *y–w.* 20 to 60 f. ♄. Woods. W.
423. Cercis canadensis. Judas tree. Red bud. Ap. *r.* 10 to 30 f. ♄. Woods. W.

LXXVIII. *URTICEÆ.*—The nettle tribe.

424. Urtica canadensis. Canadian nettle. July–Aug. *g–w.* 3 to 6 f. ♃. sw. Damp. W.
425. U. divaricata, *Beck.* July–Aug. 2 to 3 f. ♃. rs. sw. O?
426. U. pumila. Richweed. Stingless nettle. Jul. 8 to 20 i. ☉. bt. sw. O. Ky.
427. U. diocia. Common nettle. Large stinging nettle. Ju.–Aug. *g.* 2 to 3 f. ♃. Waste places. rd. O. Ky.
428. U. procera, *Muhl.* Tall nettle. Gregareous nettle. Jul.–Aug. *g.* 3 to 4 f. ♃. O?
429. U. gracilis, *Lin.* Slender stalked nettle. June–Aug. *g.* 2 to 3 f. ♃. rs. &c. Hill two miles E. from Cin.
430. U. urens. Dwarf stinger. Stinging nettle. June–July. 12 to 20 i. ☉. cf. Intr. Ky. *St.*
431. Bœhmeria lateriflora. July. *g.* 2 to 7 f. ♃. sw. O. Ky.
432. B. cylindrica. False nettle. June–Aug. *g.* 2 to 3 f. ♃. wp. &c. Two miles S. from Columbus, O.
433. Parietaria pennsylvanica. Pellitory. June. 12 to 15 i. ☉. rs. ow. &c. W.
434. Cannabis sativa. Hemp. June. *w–g.* 6 to 8 f. ☉. Intr.
435. Humulus lupulus. Common hop. Hop vine. Aug. *g–w.* Twining. ♃. bt. Hedges. W. Tonic, narcotic. Big. Med. Bot. iii. 163.

LXXIX. *ULMACEÆ.*—The elm tribe.

436. Ulmus americana. White elm. Ap.–May. *p.* Tall tree. W. Bark astringent, demulcent. Timber valuable.
437. U. fulva. Slippery elm. May. Large tree. W. Inner bark mucilaginous, demulcent; used considerably in medicine.
438. U. alata. Whahoo. A large tree. Ky. Tenn. *Nutt.*

439. Celtis crassifolia. Hackberry. May. *g–w.* Tree 20 to 40 f. O. Ky.
440. C. occidentalis. Hoop ash. Beaver wood. Nettle tree. May. *g–w.* Tree of middling size. Five miles west from St. L. *Bk.*
441. C. pumila. May. *g.* 6 f. ♄. Banks of rivers, Ky. *St.*
442. Planera aquatica. May. ♄. 25 to 30 f. West of the Alleghanies, *Nutt.*

LXXX. *ARTOCARPEÆ.*—The bread-fruit tribe.

443. Maclura aurantiacia. Maclure's mock orange. Ossage apple. Bow-wood. Yellow-wood. Tree 20 to 30 f. Ark. *Jas.*
444. Morus rubra. Red mulberry. May. 15 to 40 f. ♄. Woods. Ky. O. Fruit very similar to blackberries, edible.

LXXXII. *CUPULIFERÆ.*—The oak tribe.

Plants of this order possess more or less astringency.

445. Quercus imbricaria. Shingle oak. Laurel-leaved oak. Tree 40 to 50 f. Leaves entire. O. Ky. &c. Much used for making shingles, where pine cannot be obtained.
446. Q. discolor. False red oak. May. Large tree 60 to 70 f. Forests, Mar. O.
447. Q. palustris. Pin oak. Water oak? May. Tree 40 to 60 f. bt. Dry woods. Swampy woods. W. Wood firm and useful.
448. Q. obtusiloba. Iron oak. Burr oak, (in Ohio.) May. 20 to 50 f. Sterile grounds, Darby Plains, O. Ky. Timber inferior only to live oak, Q. virens.
449. Q. macrocarpa. Over-cup oak. May. Large tree 40 to 60 f. Limestone hills, *Bk.* bt. Acorn very large. Timber excellent. W.
450. Q. olivæformis. Mossy-cup oak. May. Large tree, much like the preceding. bt. &c. Miami country.
451. Q. alba. White oak. May. A tree sometimes of gigantic dimensions. Forests, where the soil is productive. W. Bark astringent, antiseptic, tonic. Big. Med. Bot. Timber valuable.
452. Q. montana. Rock chesnut oak. Mountain oak. May 30 to 40 f. ♄. rs. O. Excellent fuel. Bark esteemed by tanners.
453. Q. phellos. Willow oak. May. 30 to 60 f. ♄. Swampy forests. Ky. *St.* Ark. *Jas.* Timber of little use.

454. Q. tinctoria. Quercitron. Black oak. May. 70 to 80 f. ♄. Woods. W. Bark used in dying yellow. Astringent, tonic, &c. Disp. Wood and Bache, 524. Michx. N. A. Sylv. i.91.
455. Q. ferruginea, *Michx.* Black Jack. Barren oak. May. 20 to 30 f. ♄. Sandy woods. Kentucky barrens, *St.* Esteemed for fuel. Q. nigra, *Willd.*
456. Q. falcata. Spanish oak. Red oak. May. 70 to 80 f. ♄. Sandy soil. Ky. *St.* Bark esteemed by tanners; wood used for staves and fuel.
457. Q. castanea. Yellow oak. May. 60 to 70 f. ♄. Mountains, &c. Ky. *St.* O. Bark used for dying yellow.
458. Q. pumila. Dwarf oak. Ap. 2 f. ♄. Ky. *St.*
459. Q. chinquapin. Chinquapin oak. Dwarf chesnut oak. May. 3 to 4 f. ♄. Barrens. Brushy Prairie near Dayton, O.
460. Q. bannisteri, *Michx.* Scrub or shrub oak. May. 4 to 6 f. ♄. Barrens. Brushy Prairie?
461. Q. triloba. Downy black oak. May. 20 to 70 f. ♄. Barrens. Brushy Prairie.
462. Q. coccinea. Scarlet oak. May. 70 to 80 f. ♄. Fertile woods. Louisville, *M'Murt.* Used for staves and fuel.
463. Q. cinerea. Ap. 20 f. ♄. Louisville, *M'Murt.*
464. Castanea vesca. Chesnut tree. May–June. Large tree. W.
465. C. pumila. Chinquapin. May. 6 to 12 f. Ky. Mar. O. Nut small and sweet.
466. Corylus americana. Hazel-nut. Wild filbert. March–Ap. 4 to 8 f. ♄. sw. Barrens. W.
467. Fagus ferruginea. Red beech. May–June. Large tree. Woods. O.
468. F. sylvatica. White beech. May. Large tree. Ky. *St.*

LXXXIII. *BETULINEÆ.*—The birch tribe.

469. Betula rubra. Red birch. May. 60 f. ♄. Banks of streams. The summer of the great flood of 1832, I saw a single prostrate but living trunk of the red birch, partly covered by alluvion, on the shore of an island in the Ohio near Marietta. It might have come from the highlands of Pennsylvania or Virginia.
470. B. glandulosa. Scrub birch. May. 2 f. ♄. Mountains. N. States to N.W. Ter. *Bk.*
471. Alnus serrulata. Alder. March. 6 to 10 f. ♄. mh. Swamps. bt. Ky. *St.*
472. A. glauca. March. ♄. St. Croix riv. *Nutt.* N.W. Ter. *Houghton.*

473. Carpinus americana. Blue beech. Water beech. Hornbeam. May. *g–y.* 10 to 20 f. ♄. Damp woods, &c. W.
474. Ostrya virginica. Iron wood. Hop hornbeam. May. 20 to 40 f. ♄. Woods. W.

LXXXIV. *SALICINÆ.*—The willow tribe.

475. Salix myricoides. Ap. ♄. Small shrub. md. rb. Woods, *Bk.* Mar. O. Mich. *Eat.*
476. S. purshiana, *Spreng.* S. falcata, *Pursh.* Pursh's willow. Ap.-May. 8 to 15 f. ♄. bt. Banks of streams, O.
477. S. angustata, *Pursh.* Ap. ♄. A shrub. W. *Muhl.*
478. S. longifolia. Long-leaf willow. Jul. 2 f. ♄. Banks of rivers. W. *Muhl.*
479. S. muhlenbergiana. Speckled willow. Ap. 3 to 5 f. ♄. Dry woods. Mich. *Eat.*
480. S. rosmarinifolia. Rosemary willow. March. 1 to 3 f. ♄. md. wp. Mich. *Eat.* O.
481. S. conifera. Rose willow. Cone-gall willow. Ap. 4 to 8 f. sw. *Bk.* wp? Mich. *Eat.* O.
482. S. ambigua. Ap. ♄. Low grounds, Germantown, O. *Frank.*
483. S. recurvata. Shrub willow. Ap. Low shrub. 2 to 3 f. sw. Germantown, *Frank.*
484. S. tristis. Mourning willow. Ap. 3 to 4 f. ♄. Germantown, *Frank.*
485. S. nigra. Black willow. Brittle-joint willow. Ap.–May. 15 to 20 f. ♄. Banks of streams, Mich. *Eat.* This and other species are tonic, astringent, and antiseptic.
486. S. lucida. Shining willow. May. Small tree or large shrub. Low grounds. Mich. *Eat.*
487. S. grisea. Gray willow. Ap. 3 to 8 f. ♄. Low grounds, Louisville, *M'Murt.*
488. S. babylonica. Weeping willow. May. Ornamental tree. Intr.
489. Populus tremuloides. Quaking asp. Aspen tree. Ap. 20 to 30 f. ♄. Woods, Ky. *St.* Wor. O.
490. P. angulata. Water poplar. Ap. 80 f. ♄. Western rivers, *Jas.*
491. P. lævigata. Cotton wood. Mar. 70 to 80 f. ♄. bt. rs. W.
492. P. candicans. Balm of Gilead. Mar. 40 to 50 f. ♄. Woods, Ky. *St.* Mich. *Eat.* The viscid buds are used in the composition of healing salves.
493. P. heterophylla. Various-leaved poplar. May. 60 to 80 f. Swamps. wp. Darby Plains, O. W. *Bk.*

494. P. grandidentata. Large American aspen. Ap. 40 to 50 f. Hills, near Cin. O.

LXXXV. *PLATANEÆ.*—The plane trbe.

495. Platanus occidentalis. Sycamore. Buttonwood. American plane tree. May. 60 to 100 f. ♄. bt. W.
496. Liquidambar styraciflua. Sweet gum tree. May. Large tree. Low woods. W. Fragrant, aromatic. Said to be medicinal.

LXXXVI. *MYRICEÆ.*—The gale tribe.

497. Myrica cerifera. Bayberry. Wax myrtle. May–June. 2 to 10 f. ♄. Shady woods. Sandy situations, &c. Presque Isle, Lake Erie. The berries yield a valuable greenish wax. Astringent, emetic, narcotic. Beach. Big. Med. Bot. iii.
498. M. gale. Sweet gale. Dutch myrtle. May. 3 to 5 f. ♄. bg. Lake Sup. *Houghton.*
499. Comptonia asplenifolia. Sweet fern. Ap.–May. 2 to 4 f. ♄. Woods, &c. Louisville, *M'Murt.* Astringent, tonic. Bart. Med. Fl. i. 224. Raf. Med. Bot. i. 115.

LXXXVII. *JUGLANDEÆ.*—The walnut tribe.

500. Juglans nigra. Black walnut. Ap.–May. 50 to 60 f. ♄. Fertile woods. W. A most valuable and beautiful timber, resembling mahogany.
501. J. cinerea. Butter-nut. White walnut. April–May. Large tree. bt. &c. W. Cathartic. Big. Med. Bot. i. 115.
502. Carya alba. Shag-bark hickory. Ap.–May. Large tree. Fertile woods. W. Timber valuable.
503. C. sulcata. Shell-bark hickory. Ap.–May. Large tree, excellent for fuel, &c. Fertile soils, Ky. O.
504. C. amara. Bitter-nut. May. Large tree. Woods. O. Ky.
505. C. porcina. Pig-nut. Broom hickory. May. Large tree, with tough wood. Woods. Ky. *St.*
506. C. tomentosa. Common hickory. Ap.–May. Large and valuable timber tree. Fertile woods. W. O.
507. C. olivæformis. Pecan nut. Ap. Grows in West. Tenn. Ky. *St.* Louisville, *M'Murt.*

LXXXVIII. *EUPHORBIACEÆ.*—The euphorbium tribe.

508. Euphorbia corollata. Flowering spurge. July–Aug. ϖ. 1 to 2 f. 4. dp. cf. O. Ky. Emetic, diaphoretic, ex-

pectorant. Big. Am. Med. Bot. iii. 119. Wood and Bache, Disp. 288.

509. E. obtusata. Jul.–Aug. 12 to 18i. 4. rd. &c. Shores of Lake Erie.

510. E. peplus. Jul.–Aug. 6 to 18 i. ⊙. cr. rd. cf. O. Ky.

511. E. maculata. Spotted spurge. French purslane. Aug.–Oct. generally prone, or creeping. 6 to 12i. ⊙. cf. rd. W.
b. var. parvula, *mihi*. Dwarf spotted spurge. Jul.–Oct. Creeping, 3 to 8 i. ⊙. rd. O. Leaves scarce one tenth the size of the preceding.

512. E. hypericifolia. Aug.–Sept. Erect, 1 to 2 f. ⊙ rd. Ky. *St.*

513. E. polygonifolia. Knot-grass-leaved spurge. Jul.–Sept. Procumbent, 8i. 4. Sands, Ky. *St.* Banks of the Ohio and Miss. *Pursh.*

514. E. thymifolia. Ky. *St.* Borders of the Ohio, *Michx.*

515. E. dentata. Toothed-leaf spurge. Jul.–Aug. ⊙. Tenn. *Michx.* Jul. ⊙. Plt. *Jas.*

516. E. portulaccoides. Purslane spurge. June–Aug. 4. Mo. Ter. *Jas.*

517. E. mercurialina. Jul. 4. rs. Ky. *Pursh.*

518. E. ipecacuanha. American ipecacuanha. June. 4. Sandy soil, Louisville. (?) *M'Murt.* Emetic, diaphoretic. Bart. Med. Bot. i. 218. Big. Med. Bot. iii. 109.

519. E. pilosa. Hairy spurge. June–Jul. 1 to 3f. 4. Wet woods, Wheeling? *Colby.*

520. E. herronii, *mihi*. Herron's euphorbium. *Root* small, branching and fibrous: *stem* erect, pilose: *branches* decussately opposite: *petioles* ciliate, half as long as the leaves: *leaves* varying from the lowest on the stem which are rhomb-ovate, to those of the involucre, which are lance linear; dentate-serrulate, obtuse, at the base acute and entire; pilose above, veins and midrib very hairy beneath: *umbels* small, terminal, involucred and few flowered. Aug.–Sept. ⊙. 1 to 2f. Small prairie half a mile south of Middletown, Ohio. Dedicated to my friend Dr. O. M. Herron, a devoted student in natural science.

521. Croton capitatum. ⊙. Ky. *St.*

522. C. ellipticum. ⊙. St. L. *Nutt.*

523. Crotonopsis linearis. June. 12 to 18i. ⊙. Sandy swamps. W. *Bk.*

524. Acalypha virginica. Three-seeded mercury. June–Aug. 12 to 18i. ⊙. rd. ow. O. Ky. Expectorant, diuretic, *Dr. Atkins.* Elliott's Bot. ii. 645.

525. A. caroliniana, *Walter.* Beck's Bot. 311. Jul.–Aug. 9 to 18i. ⊙. ow. &c. O.

526. A. ostryafolia, *mihi.* Iron-wood-leaved mercury. It is probably the A. caroliniana of Elliott, vol. ii. 645. Found by Mr. T. G. Lea, on one of the Kentucky hills opposite Cincinnati. Aug.–Sept. ⊙? The leaves resemble in form, those of Ostrya virginica.

527. Pachysandra procumbens. June. *g.–w.* Procumbent. 4. Ky. *St.*

528. Tragia macrocarpa. Jul. ⊙. Climbing. Ky. *Michx.*

XCIII. *CELASTRINEÆ.* The false bitter-sweet tribe.

529. Celastrus scandens. False bitter-sweet. Red root. Climbing staff tree. May–June. *g.–y.* Woody vine, 10 to 20f. Woods. Narcotic, secernant stimulant. It is regarded by Mr. Miles, a Thompsonian, as stimulating and diuretic, and capable of removing hepatic obstructions. Portio pulv. cort. radicis, 3i. ter die.

530. Euonymus atropurpureus. Indian arrow. June. *p.* 6 to 10f. ♄. sw. O. Has active medicinal virtues, if we credit popular opinion.

531. E. americanus. Burning bush. Spindle tree. June. *r–y.* 4 to 6f. ♄. sw. Pittsburgh, *Peter.* Ky. *St.*

532. E. obovatus. Trailing euonymus. June. *g.* & *p.* Prostrate, 2 to 6f. long. sr. Ky. Wor. O. Root similar to that of sp. 529, and probably possesses similar qualities.

XCVI. *RHAMNEÆ.* The buckthorn tribe.

533. Rhamnus carolinianus. May. 4 to 6f. Ky. *St.*

534. R. alnifolius. Dwarf elder. May–June. g. ♄. rs. Mo. Ter. *Eat.*

535. R. lanceolatus. Shrub. Ky. *St.*

536. C. enothus americanus. Red-root. New Jersey tea. Jul. *w.* 2 to 3f. ♄. ow. dp. W. An Indian remedy for syphilis. Hoop. Med. Dic. Astringent. Raf. Med. Bot. ii. 205.

537. C. sanguineus. Bloody ceanothus. May. *w.* 3 f. ♄. Plt. *Nutt.*

538. C. intermedius, *Pursh.* Dwarf red-root. Similar to 536, but much smaller. *Elliott.* Mo. Ter. *Jas.* Woods, Tenn. *Lyon.* Pursh, i. 167.

XCVII. *STAPHYLEACAÆ.* The bladder-nut tribe.

539. Staphylea trifolia. Bladder-nut. Ap.–June. *w.* 6 to 10f. ♄. sw. sr. cr. W.

XCVIII. *HIPPOCASTANEÆ.* THE HORSE-CHESNUT TRIBE.

540. Æsculus glabra, *Willd.* May. *y—w.* 10 to 30 f. ♄. Woods. Lexington, *Short*, Eat. Man. Banks of the Illinois, *Bk.* Probably identical with the next.

541. Æ. ohioensis, *mihi.* A. pallida, *Willd.* ohioensis, *Eat? Michx?* Buckeye. Fetid buckeye. *Calyx* half as long as the corol: *petals* 4, yellowish, claw shorter than the calyx: *stamens* twice as long as the petals: *pericarp* echinate: *leaves* in fives, lance-oblong, acuminate, serrulate, glabrous above, axils of the veins pubescent beneath: *bark* rough, cinereous. 40 to 50 f. ♄. bt. O. Ky. Emetic, narcotic, &c. *Dr. Drake.*

542. Æ. flava, *Ell.* Bot. i. 436. *Pursh.* Æ. lutea, *Linn? Eat?* Sweet buckeye. Upland buckeye. Ap. Pale *y.* 20 to 80 f. ♄. Pericarp smooth. Hills near large rivers, O. Ky.

543. Æ. On the Walnut Hills near Cincinnati, I find a species of Æsculus resembling the flava, but differing in the deep orange and yellow hue of its flowers, its glabrous, irregularly serrate leaves, and more acute divisions of the calyx. The buckeye (either the flava or ohioensis) is regarded as the emblem tree of Ohio.

544. Æ. discolor, *Pursh.* May. *y. w.* & *p.* 4 f. ♄. West Va. *Paddock.*

C. *SAPINDACEÆ.* THE SOAP-TREE TRIBE.

545. Cardiospermum halcacabum, *Willd.* Heart seed. Aug. ☉. Mo. Ter. *Jas.* Aperient, Lind. Nat. Syst. 115.

CI. *ACERINEÆ.* THE MAPLE TRIBE.

546. Acer rubrum, *Ehrh.* Red maple. Soft maple. Ap. *r.* 80 to 50 f. ♄. Woods. W. Bark astringent: used domestically in dying black.

547. A. eriocarpum, *Michx.* White maple. Silver maple. River maple. Ap.–May. *g.* Large tree. River banks. W.

548. A. saccharinum, *Linn.* Sugar maple. Hard maple. Ap.–May. *g–y.* 40 to 60 f. Woods W. Yields sugar and excellent fuel.

549. A. nigrum, *Michx.* Black maple. Sweet tree. Ap. *y–g.* 40 to 60 f. Very similar to the last. O.

550. A. negundo, *Linn.* Ash-leaved maple. Box elder. Ap. *g.* 30 to 60 f. ♄. bt. & W.

551. A. striatum, *Michx.* Striped maple. False dogwood. May. *g.* 15 f. Woods. Louisville, *M'Murt.*—

For the medicinal virtues of the maples, see Raf. Med. Bot. ii. 185.

CIV. *AMPELIDEÆ, De Cand.*—THE VINE TRIBE.

552. Vitis vulpina, *Linn.* Winter grape. Frost grape. June. *w–g.* Woody vine. 5 to 50 f. River banks, bt. O. Ky. Fruit tart, Nov.

553. V. æstivalis, *Michx.* Summer grape. May–June. *w–g.* Woody vine, 5 to 50 f. sw. bt. Missouri banks, St. L. *Bk.* O. Fruit, Aug.

554. V. labrusca, *Linn.* Fox grape. Longworth's grape. June–July. *w–g.* Woody vine, 10 to 60 f. Woods, O. Ky. Cultivated in Ohio.

555. V. riparia, *Michx.* Fragrant flowered grape. July. *w–p.* Woody vine. Gravelly shores, Mich. *Eat.*

556. Ampelopsis quinquefolia, *Michx.* Common creeper. American ivy. June–Jul. *g.* Woody vine, 5 to 40 f. ow. rs. W. Admirable expectorant in pulmonary complaints. The vine. Mr. Lane of Norwalk, Ohio. Eberle, West. Med. Gaz. i.

557. A. cordata, *Michx.* Heart-leaved ivy. Ju.–Jul. Woody vine. Banks of streams. Alleghany Mountains, *Eat.* West to Ark. *Bk.*

558. A. bipinnata, *Michx.* June–July. Shrubby vine. Rich, damp soils. Ark. *Jas.*

CXIII. *ANACARDIACEÆ.*—THE CASHEW TRIBE.

559. Rhus glabra, *Linn.* Sumach. Smooth sumach. July. *g–y.* 6 to 12 f. ♄. Old fields, &c. W. Berries astringent, refrigerant. Am. Jour. Med. Sci. v. 61. Big. Med. Bot.

560. R. copallina, *Linn.* Mountain sumach. July. *y–g.* 3 to 12 f. ♄. Dry fields, Ky. *St.* Yields gum copal.

561. R. aromatica. Aromatic sumach. May–June. *y.* 2 to 6 f. ♄. bt. Calcareous regions. W. Medicinal?

562. R. vernix, *Linn.* Poison ash. June. *g–y.* 10 to 15 f. ♄. Margins of swamps. O. Stimulant, poisonous. Big. Med. Bot. i. 96.

563. R. toxicodendron, *Linn.* Poison vine. Poison ivy. June. *w–g.* 2 to 5 f. ♄. Woods. W. Stimulant, narcotic. Big. Med. Bot. iii. 19. Juice extremely poisonous.

b. var. radicans, *Torr.* Climbing trees and rooting in their bark. 30 to 50 f. Supposed by some to cause the milk sickness.

564. R. typhina, *Linn.* Stag's horn. June. *g–y.* 10 to 15 f. rs. Louisville, *M'Murt.*

CXIV. *XANTHOXYLEÆ.*—THE PRICKLY ASH TRIBE.

565. Xanthoxylum fraxineum, *Willd.* Prickly ash. Ap. *g.* 3 to 5 f. ♄. Woods, W. Stimulant, diaphoretic, sialagogue, antirheumatic. Big. Med. Bot. iii. 156.

566. Ptelea trifoliata, *Linn.* Stinking prairie bush. Stinking ash. Swamp dogwood. Shrubby trefoil. June. *g–w.* 4 to 10 f. ♄. ow. dp. W. Said to cure intermittents. Doubtless actively medicinal.

CXXII. *GERANIACEÆ.*—THE GERANIUM TRIBE.

567. Geranium maculatum, *Linn.* Cranesbill. June. *p.* 8 to 15 i. ♃. Woods. Root astringent. Big. Med. Bot. i. 19.

568. G. carolinianum, *Linn.* Jul. *w* & *r.* 12 to 18 i. ☽. wp. Ill. riv. *Bk.*

CXXIII. *OXALIDEÆ.*—THE WOOD-SORREL TRIBE.

The western plants of this order are acidulous and refrigerant, and may be used in fevers. Said to be antiscorbutic. Wood & Bache. 10.

569. Oxalis stricta, *Linn.* Wood-sorrel. May–Aug. *y.* 4 to 10 i. ☉. Sandy fields, &c. O. Ky.

570. O. violacea, *Linn.* Violet wood-sorrel. May–June. *p.* 4 to 6 i. ♃. Hills. rs. W.

571. O. corniculata, *Linn.* May–Aug. *y.* 6 to 10 i. ☉. Woods, sr. &c. O.

572. O. recurva, *Ell.* Ap.–May. *y.* 4 to 8 i. ☉. cf. rb. Mar. O.

573. O. dillenii, *Willd.* May. *y* & *p.* 6 to 18 i. ☉. Woods, O.

CXXVI. *BALSAMINEÆ.*—THE BALSAM TRIBE.

574. Impatiens pallida, *Nutt.* Snap weed. Touch me not. False celandine. Aug. pale *y.* 2 to 4 f. ☉. Damp grounds. W. Diuretic, emetic. Raf. Med. Bot. ii. 231. Lind, 140.

575. I. fulva, *Nutt.* Jewel weed. Aug. *y* & *orange.* 2 to 3 f. ☉. Damp grounds, W. Medicinal, like the last.

CXXIX. *POLYGALEÆ.*—THE MILKWORT TRIBE.

576. Polygala senega, *Linn.* Seneka snakeroot. June–Jul. *w.* 1 f. ♃. Woods. O. Ky. Stimulant, diuretic, sialagogue, expectorant, purgative, emetic, sudorific, emenagogue! Bart. ii. 116. Big. ii. 97.

577. P. ambigua, *Nutt.* Jul. *p.* 8 to 10 i. Mar. O.

578. P. alba, *Nutt.* *w.* 6 i. ♃. Plains, Mo. Ter. *Nutt.*

579. P. polygama, *Walt.* Bitter polygala. June–July. *p.* 4 to 8 i. 4. Woods. Mich. *Nutt.* Medicinal, bitter. Big. Med. Bot. iii. 129.
580. P. brevifolia, *Nutt.* Jul.–Aug. *r.* ⊙. Sandy swamps, O. *Nutt.*
581. P. purpurea, *Nutt.* Jul.–Aug. *p–r.* 12 to 18 i. ⊙. Duncan's Plains, O.
582. P. incarnata, *Linn.* Milkwort. June–Jul. *r.–p.* 12 to 18 i. ⊙. Mich. *Eat.* Ky. *St.*
583. P. verticillata, *Linn.* Jul.–Oct. *g–w.* 8 to 12 i. ⊙. Sandy soils. W. *Bk.* Ky. *St.*
584. P. setacea, *Michx.* Jul. ⊙. Ky. *St.*
585. P. pauciflora, *Willd.* Flowering wintergreen. June. *p.* 3 to 4 i. 4. Woods, &c. Near Lake Huron, *Bk.*
586. P. sanguinea, *Linn.* Bloody polygala. June–Oct. *r.* 8 to 12 i. ⊙. Dry soils, Louisville, *M'Murt.*
587. P. lutea, *Linn.* Yellow polygala. June–Oct. *y.* 8 to 16 i. ♂. Pine barrens, &c. Louisville, *M'Murt.*

CXXX. *VIOLACEÆ.*—The violet tribe.

Plants of this order possess emetic, cathartic, demulcent and expectorant qualities.

588. Viola cucullata, *Ait.* Common blue violet. May. *b.* 4 to 8 i. 4. Woods, O.
589. V. pubescens, *Ait.* Yellow wild violet. May. *y.* 6 to 8 i. 4. Woods, W.
590. V. rostrata, *Muhl.* Ap.–May. Pale *b.* 6 to 8 i. 4. Woods. rs. &c. Wor. O. Ky.
591. V. affinis, *Le Conte.* Prairie violet. May, *Eat.* Oct. *b–p.* 2 to 6 i. 4. wp. Van Cleve's Prairie, Dayton. Pickaway Plains, O. Ky.
592. V. palmata, *Linn.* Hand-leaf violet. May. *b–p.* 3 to 6 i. 4. Cin. O. Ky.
593. V. sororia, *Willd.* May. *b–p.* 4. Dry woods, Ky. *St.*
594. V. sagittata, *Ait.* Arrow-leaf violet. May. *p.* 4. Fields. West Va. *Paddock.* Ky. *St.*
595. V. amœna, *Le Conte.* Twisted violet. Ap. *w.* 4. Moist woods, Ky. *St.*
596. V. blanda, *Willd.* Smooth violet. Ap.–May. *w* & *p.* 2 to 4 i. 4. Wet meadows, &c. Ky. *St.* West of St. L. *Bk.*
597. V. primulæfolia, *Linn.* Ap.–May. *w.* 4. Wet woods, Ky. *St.*
598. V. lanceolata, *Linn.* Ap.–May. *w.* 3 to 8 i. 4. Swamps, Ky. *St.* Near Lake Huron, *Bk.*
599. V. pedata, *Linn.* May. Pale *b.* 3 to 5 i. 4. rs. Hills,

W. *Bk.* Ky. *St.* Medicinal. Wood & Bache, 668. Curtis Bot. Mag. 89.

600. V. canadensis, *Linn.* Canadian violet. *r, w* & *b.* 12 to 18 i. 4. ow. Fields. W. *Bk.* Ky. *St.* Cin. O.

601. V. muhlenbergiana, *De Cand.* Muhlenberg's violet. May. *b.* 6 to 10 i. 4. *Swamps*, Ky. *St.*

602. V. ochroleuca, *Schw.* V. striata, *Ait.* Striated violet. May. *y–w.* 6 to 10 i. 4. ow. bt. Swamps. *Bk.* O. Ky.

603. V. heterophylla, *Muhl.* Various-leaved violet. March. *p.* 8 to 12 i. 4. Ky? *St.*

604. V. debilis, *Michx.* March–Ap. *w.* 4. Louisville, *M'Murt.*

605. V. nuttalli, *Pursh.* Nuttall's violet. May. *y.* 4 to 6 i. 4. Banks of the Missouri, *Pursh.*

606. V. tenella, *Muhl.* May. *b–w.* 2 to 4 i. 4. Sandy Hills, W. *Bk.*

607. V. tricolor, *Linn.* Pansy. Heart's ease. Garden violet. May. *p, y and p–b.* 3 to 8 i. Intr. Medicinal. Wood and Bache, 668.

608. Solea concolor, *De Cand.* Green violet. April–May. *g.* 2 to 4 f. 4. rs. sw. W. Medicinal?

CXXXI. *PASSIFLOREÆ.*—The passion-flower tribe.

609. Passiflora lutea, *Linn.* Yellow passion-flower. Aug. *y.* Delicate vine, 5 to 10 f. 4. Thickets, O. Ky.

610. P. incarnata, *Willd.* Flesh-colored passion-flower. May–July. *w* & *p.* Vine, 20 to 30 f. 4. Dry soils, Ky. *St.*

CXXXIV. *CISTINEÆ.*—The rock-rose tribe.

611. Lechea villosa, *Ell.* Pin-weed. Jul. Flowers brown. 1 to 2 f. 4. Barren soil, Ky. *St.*

612. L. minor, *Pursh.* Smaller pin-weed. Jul. *g–p.* 8 to 10 i. 4. Dry hills, Ky. *St.*

613. L. racemulosa, *Michx.* Jul. 1 to 2 f. 4. Sandy situations, Mar. O. Ky.

614. Hudsonia tomentosa, *Nutt.* Silvery false heath. June. *y.* 6 i. ♄. Sea shore usually. Mich. *Eat.*

615. H. ericoides, *Linn.* False heath. May–June. *y.* 4 to 6 i. ♄. Pine barrens, *Bk.* Prairie near Middletown, O (?) Louisville, *M'Murt.*

616. Helianthemum canadense, *Michx.* Rock-rose. Frost weed. June. *y.* 1 f. ow, &c. Sandy prairie near St. L. *Bk.*

CXXXVI. *SARRACENIEÆ*

617. Sarracenia purpurea, *Linn.* Side-saddle flower. June–

July. *p.* 1 to 2 f. 4. bg. Said to occur in the northern part of Ohio. Doubtful.

CXXXVII. *DROSERACEÆ.*—The sundew tribe.

618. Drosera longifolia, *Linn.* Long-leaved drosera. July–Aug. 2 to 4 i. 4. Swamps. Near Lake Sup. *Hough.* Ky. *St.*

619. D. rotundifolia, *Linn.* Sundew. July. *w.* 4 to 8 i. 4. Swamps. Ky. *St.* Lk. Sup. *Hough.* Acid, slightly acrid. Lind. 151.

CXXXIX. *LINEÆ*—The flax tribe.

620. Linum virginianum, *Linn.* Wild flax. July. *y.* 1 to 2 f. ☉. rs. O. Ky.

621. L. perenne, *Linn.* Perennial flax. Jul. *b.* 1 to 2 f. 4. Mo. Ter. *Nutt.*

622. L. rigidum, *Linn. y.* 6 i. Mo. Riv. *Jas.*

CXL. *CARYOPHYLLEÆ.*—The chickweed tribe.

§ 1. Silenee. *Pink like.*

623. Silene virginica, *Linn.* Virginian catch-fly. May–June. *r.* (*purple* according to Beck.) 1½ to 3 f. 4. ow. bt. O. Anthelmintic. Lind. Nat. Syst. 154.

624. S. pennsylvanica, *Michx.* Wild pink. May–June. *r.* 8 to 12 i. 4. Sandy woods. Mar. O. Ky. Mich.

625. S. regia, *Linn.* Royal catch-fly. Jul. *r.* 2 to 3 f. 4. Prairies, O, Ky.

626. S. catesbæi, *Walt.* June. *Crimson.* 1 f. 4. Penn. to Miss. *Muhl.*

627. S. rotundifolia, *Nutt.* Round-leaved catch-fly. Jul. *r.* rs. O. and Tenn. *Nutt.* Ky. *St.*

628. S. acaulis, *Linn.* Jul. *r.* 4. White Mountsins, N. H. west to the Rocky Mountains, *Bk.*

629. Agrostemma githago, *Linn.* Corn cockle. June–July. *p.* 1½ to 3 f. ☉. cf. Intr.

630. Saponaria officinalis, *Linn.* Soap-wort. Bouncing Bet. June–Sept. pale *r.* 12 to 18 i. 4. rd. rb. Miami country. Intr. Acrid, saponaceous, anti-venereal. Eberle Mat. Med. ii. 220.

631. Cucubalus stellatus, *Linn.* Star campion. Jul. *w.* 2 to 3 f. 4. cr. ow. O. Ky. Prairies, Ill. and Mo. *Bk.*

§ 2. Alsineæ. *Chick-weed like.*

632. Sagina procumbens, *Linn.* Pearl-wort. Jul. *w.* 2 to 4 i. 4. Borders of streams, W. *Bk.*

633. Spergula arvensis, *Linn.* Corn spurrey. June–Aug. *w.* 6 to 12 i. ☉. Sandy fields. Intr. W. *Bk.*
634. S. saginoides, *Linn.* Pearl-wort spurrey. June. *w.* 2 to 4 i. ☉. Sandy fields. W. *Bk.* Very similar in appearance to sp. 632.
635. Mollugo verticillata, *Linn.* Carpet weed. Indian chickweed. July–Sept. *w.* Prostrate. cf. Sandy situations, W.
636. Stellaria media, *Smith.* Chickweed. March–Nov. *w.* Spreading, 3 to 6 i. ☉. rd. W.
637. S. pubera, *Michx.* Starwort. May. *w.* 6 to 10 i. ♃? rs. W.
638. S. palustris, *Retz.* Stitchwort. June. *w.* 6 to 12 i. mh. Wor. O.
639. S. uliginosa, *Screb.* Bog starwort. June. *w.* (4 to 6 i. ☉? Woods, cr. O)?
640. S. longifolia, *Muhl.* June. *w.* 12 to 15 i. ♃. Moist woods, St. L. *Bk.*
641. Cerastium nutans, *Raf.* June. *w.* 6 to 12 i. ☉. rs. Hills, *Bk.* Banks of rivulets, Wor. O. Ky. Mich.
642. C. vulgatum, *Linn.* Mouse-ear chickweed. May–Aug. *w.* 6 to 10 i. ☉. Fields and hills. Intr. W.
643. C. viscosum, *Linn.* Sticky chickweed. May–Aug. *w.* 6 to 12 i. ♃. rd. cf. Mich. *Eat.*
644. C. hirsutum, *Muhl.* Hairy chickweed. May. *w.* 4 to 8 i. ☉. Dry hills, Ky. *St.*
645. C. arvense, *Willd.* June. *w.* 6 i. ♃. Ky. *St.*
646. C. dichotomum, *Muhl.* June. *w.* 9 i. ☉. Pittsburgh. *Peter.*
647. C. oblongifolium, *Torr.* June. *w.* 8 to 10 i. ♃. Mountains, *Bk.* Mich. *Houghton.*
648. Arenaria stricta, *Michx.* Erect sandwort. May–June. *w.* 6 to 12 i. ♃. Mountains, *Bk.* Mich. *Eat.* Ky. *St.*
649. A. juniperina, *Willd.* Juniper leaved sandwort. ♃. Mich. *Eat.*
650. A. serpyllifolia, *Linn.* Thyme leaved sandwort. May–Jul. *w.* Decumbent, 3 to 8 i. ☉. Sandy fields, Ky. *St.*
651. A. lateriflora, *Linn.* Sandwort. June. *w.* 5 to 10 i. ♃. md. Wor. O. Lk. Sup. *Hought.*
652. A. obtusa, *Torr.* ♃. Mich. Eat.
653. A. patula, *Michx.* ♃. Knoxville, Ky. *Michx.*

CXLIII. *ELATINEÆ.*—The water-pepper tribe.

654. Crypta minima, *Nutt.* Mud purslane. May–Aug. *g–w.*

Prostrate, small. ⊙? Banks of streams, throughout U. S. *Bk.*

CXLIV. *PORTULACEÆ.*—The purslane tribe.

655. Portulacca oleracea, *Linn.* Purslane. May–Aug. *y.* Spreading, 6 to 18 i. ⊙. cf. Intr. W. Indigenous to the plains of Mo. *Nutt.* Used as a potherb.
656. Claytonia virginica, *Linn.* Spring beauty. Ap. *w* & *r.* 6 to 12 i. 4. ow. md. W.
657. C. lanceolata, *Pursh.* June. *w.* 4. Louisville, *M'Murt.*
658. Talinum teretifolium, *Pursh.* Taliny. Jul.–Sept. *p.* 4 to 10 i. 4. rs. St. L. *Bk.* St. Croix riv. *Houghton.*

CXLVI. *GALACINEÆ.*

659. Galax rotundifolia, *Michx.* May–Aug. *w.* 12 to 18 i. 4. Mts. Tenn. *Nutt.*

CXLVII. *CRASSULACEÆ.*—The house-leek tribe.

Possess refrigerant and abstergent properties. Lind. Nat. Syst. 160.

660. Sedum ternatum, *Michx.* False ice-plant. June. *w.* 2 to 3 i. 4. rs. cr. W.
661. S. pulchellum, *Michx. p.* 3 to 4 i. Ky. *St.*
662. Penthorum sedoides, *Linn.* Virginian stone crop. Virginian orpine. Jul.–Aug. Pale *y.* 12 to 18 i. 4. rb. bt. W.

CL. *ILLECEBREÆ.*

663. Queria canadensis, *Linn.* Forked chickweed. Jul.–Aug. *w.* 6 to 12 i. ⊙. ow. sw. O. Ky.
664. Q. argyrocoma, *Muhl.* June. rs. Tenn. *Nutt.*
665. Q. sessiliflora, *Nutt.* Jul. Hills Mo. Ter. *Nutt.*

CLI. *AMARANTACEÆ.*—The amaranth tribe.

666. Amarantus albus, *Willd.* White coxcomb. Jul. *g–w.* 18 i. ⊙. Gardens, cf. O.
667. A. hybridus, *Willd.* Jul. *g.* 1 to 2 f. ⊙. cf. rd. O.
668. A. græcizans, *Willd.* Aug. *g.* ⊙. Louisville, *M'Murt.*
669. A. altissimus, *mihi.* Tall amaranth. *Spikes* lax, simple when axillary, compound when terminal: *leaves* ovate-oblong, mucronate, acute at the base, long petioled: *stem* branching above, 6 to 8 f. Flowers reddish green. Aug. ⊙. On an old prairie, near Hamilton, O.
670. A. miamiensis, *mihi.* Prairie amaranth. *Spikes* rather lax, axillary and terminal, compound: *leaves* ovate and lance-ovate, retuse, mucronate, acute at the base: *pe-*

tioles nearly as long as the leaves. Very branching, 2 to 3 f. ⊙. Flowers *r* & *g*. Hoffman's prairie, near Dayton, O. I give these as merely temporary names, until the plants shall be further investigated.

671. Iresine celosioides, *Willd.* Sept.–Oct. *w*. 3 to 4 f. ⊙. rb. &c. Cin. O. Ky.

CLIII. *CHENOPODEÆ.*—The goosefoot tribe.

672. Chenopodium album, *Linn.* Lamb's quarter. Pigweed. Jul.–Aug. *g*. 2 f. ⊙. cf. rd. W. A potherb.

673. C. rhombifolium, *Muhl.* June. *g*. 2 to 3 f. cf. rd. Wor. O.

674. C. anthelminticum, *Linn.* Worm-seed. Aug. *g*. 18 to 24 i. 4 Fields, Ky. O. Anthelmintic. Bart. ii. 187.

675. C. ambrosiodes, *Linn.* Sweet pigweed. Aug.–Sept. *g*. 18 to 24 i. 4. ⊙. rd. O. Tonic, anthelmintic. Lind. 192.

676. C. botrys, *Linn.* Jerusalem oak. Jul.–Sept. *g*. 12 to 16 i. ⊙. rd. Ky. O. Pectoral. Hoop. Dic.

677. C. hybridum, *Linn.* Jul.–Aug. 2 to 3 f. ⊙. rd. Ky. Intr.

678. C. maritimum, *Linn.* Aug.–Sept. 18 to 24 i. ⊙. Salt meadows usually. Plains of the Mo. riv. *Nutt.*

679. Atriplex canescens, *Nutt.* May. 3 to 4 f. Saline hills, Mo. Ter. *Nutt.* Mo. *Bk.*

680. A. argentea, *Nutt.* Silver-leaf orach. 1 f. ⊙. Plt. *Jas.*

681. A. patula, *Linn.* Aug. Prostrate, 1 to 2 f. ⊙. Louisville, *M'Murt.*

682. A. hortensis, *Linn.* Garden orach. Jul. *g*. 3 to 4 f. ⊙. cf. O. Intr. A potherb.

683. Acnida cannabina, *Linn.* Water hemp. Jul.—Aug. *g*. 3 to 6 f. ⊙. mh. Ky. *St.*

684. Corispermum hyssopifolium, *Willd.* Aug. ⊙. Plt. *Jas. Nutt.*

685. Blitum capitatum, *Linn.* Strawberry blite. Indian strawberry. June. 15 i. ⊙. Fields, &c. N. W. Ter. *Houghton.*

686. B. chenopodioides, *Nutt.* ⊙. Dry situations. Plt, *Jas.*

687. B. virgatum, *Linn.* Slender blite. June. ⊙. Fields. Intr. Louisville, *M'Murt.*

688. Kochia dioica, *Nutt.* May. 6 to 12 i. ⊙. Mo. Ter. *Nutt.*

689. K. dentata, *Willd.* June. ⊙. Plt. *Jas.*

690. Diotis lanata, *Pursh.* June. ♄. Arid situations on the banks of the Missouri, *Nutt.*

691. Polycnemum americanum, *Nutt.* 4. Plt. *Jas.* Mo. Ter. *Nutt.*

CLIV. *PHYTOLACCEÆ.*—Indian poke tribe.

692. Phytolacca decandra, *Linn.* Indian poke. Poke-weed. Scoke-weed. June–Oct. *w.* 4 to 8 f. 4. ow, &c. W. Emetic, antirheumatic, anti-schirrous? Bart. Med. Fl. ii. 220.

CLVI. *POLYGONEÆ.*—The buck-wheat tribe.

693. Polygonum aviculare, *Linn.* Knot grass. May–Sept. *g.* Procumbent, 6 to 8 i. ⊙. *Bk.* 4, *Eat.* rd. W. Astringent, styptic. Hoop. Dic.

694. P. erectum, *Muhl* Large knot grass. Aug. *g.* 8 to 30 i. 4. cf. rd. W. Resembles the preceding.

695. P. virginianum, *Linn.* Virginian bistort. Jul.–Aug. *w & r.* 2 to 4 f. 4. sw. W. Astringent, &c.

696. P. punctatum, *Ell.* Water pepper. Smart weed. Aug.–Sept. *w.* 1 to 2 f. ⊙. rb &c. O. Ky. Acrid, emenagogue, diuretic. Eberle, West. Med. Gaz. i. Hoop. Dic.

697. P. persicaria, *Linn.* Ladies' thumb. Jul.–Aug. *r.* 12 to 18 i. ⊙. Wet grounds, O. Ky. Vulnerary, antiseptic. Hoop. Dic.

698. P. lapathifolium, *Linn.* Aug.–Sept. *w* or pale *r.* 2 to 3 f. ⊙. Ditches, &c. O. This, and the two preceding species, I believe, are used in dying yellow.

699. P. mite, *Pers.* Tasteless knot-weed. Jul.—Sept. *p.* 12 to 18 i. ⊙. mh. pl. Darby plains, O.

700. P. pennsylvanicum, *Linn.* Jul.–Sept. *w–r.* 2 to 4 f. ⊙. Margins of ponds. O. Ky.

701. P. barbatum, *Willd.* Jul. *r–w.* 18 to 24 i. Louisville, *M'Murt.* Seeds carminative. Ainslie, ii. 2.

702. P. bistortoides, *Pursh.* June. *w–r.* 4. Low grounds on the banks of the Missouri, *Lewis.*

703. P. amphibium, *Linn.* Amphibious knot-weed. Aug. *r.* 12 to 18 i. 4. pl. mh. O. Ky.

704. P. coccineum, *Willd.* Creeping knot-weed. Aug. *r.* Creeping, 6 to 12 f. *Eat.* 4. Muddy situations. rb. O.

705. P. hirsutum, *Walt.* Jul. *w.* 2 f. O. (rb. Mar. O.)?

706. P. articulatum, *Linn.* Joint-weed. Sept. *r & w.* ⊙. 9 to 15 i. Sandy plains, Mich. *Nutt.*

707. P. sagittatum, *Linn.* Prickly knot-weed. Arrow-leaf knot-weed. July–Aug. *w.* Vine, 4 to 6 f. ⊙. md. wp. W.

708. P. arifolium, *Linn.* Halbert-leaf knot-weed. Aug.–Sept. Pale *r.* 2 to 4 f. ⊙. mh. md. wp. W.

709. P. scandens, *Linn.* Climbing buck-wheat. Jul.–Aug. *w & r.* Vine, 4 to 8 f. ⊙. sw. Hedges, W.

710. P. convolvulus, *Linn.* Bind-weed. Jul.–Sept. Reddish *w.* Vine, 6 to 8 f. ⊙. cf. Mo. *Bk.* O.
711. P. fagopyrum, *Linn.* Buck-wheat. June. *r–w.* 1 to 2 f. ⊙. cf. Ohio banks. Intr.
712. Brunnichia cirrhosa, *Michx.* Ap.–May. Climbing. 4. Wet places among bushes. Islands, Tenn. *Pursh.*
713. Eriogonum sericeum, *Pursh.* Jul. *y.* 4. Prairies of Missouri, *Nutt.* (Pursh. i. 277.)
714. Calligonum canescens, *Pursh.* June. ♄. Plains of the Mo. near the Big-bend, *Pursh.*
715. Rumex sanguineus, *Linn.* Bloody dock. June–Jul. 2 f. 4. rd. Fields. Intr. O. Ky.
716. R. crispus, *Linn.* Curled dock. June–Jul. 2 to 3 f. 4. Fields. Intr. O. Ky. This and the three following species, are astringent, tonic, alterative and antiscorbutic. Wood & Bache, 545.
717. R. brittanicus, *Linn.* Yellow-rooted water dock. June–Jul. 3 f. 4. Swamps, W. Medicinal. See 716.
718. R. aquaticus, *Linn.* Water dock. Jul.–Aug. 3 to 4 f. 4. Ponds and ditches, Wor. O? Med. See 716.
719. R. obtusifolius, *Linn.* Blunt-leaf dock. Jul. 2 to 3 f. ow. Fields. Intr. Mar. O. Med. See 716.
720. R. persicarioides, *Linn.* June–Jul. 6 to 12 i. ⊙. sw. Damp places, Ky. *St.*
721. R. acetosella, *Linn.* Sorrel. Sheep sorrel. June–Jul. 6 to 12 i. cf. rd. W. Refrigerant, diuretic, antiscorbutic. Wood & Bache, 9.
722. R. venosus, *Pursh.* Ap. 1 f. 4. Sandy banks, Plt. *Nutt.*
723. R. crispatulus, *Michx.* Ky. *Michx.*
724. R. verticillatus, *Walt.* June. 2 to 3 f. 4. (Mh. Swamps, O.)?
725. R. acutus, *Linn.* June. 2 to 3 f. 4. Moist grounds, Louisville, *M'Murt.* Intr.

CLVIII. *NYCTAGINEÆ.*—The marvel of Peru tribe.

The roots of these plants are more or less purgative. Lind.

726. Alliona abida, *Walt.* Ap. ⊙? Mo. Ter. *Nutt.* N. W. Ter. *Houghton.*
727. A. nyctaginea, *Michx.* Jul. 4. Common on the alluvions of the Missouri. *Nutt.*
728. A. linearis, *Pursh.* Plt. *Jas.*

CLIX. *SAURUREÆ.*—The swamp lily tribe.

729. Saururus cernuus, *Linn.* Swamp lily. Lizard's tail. Breast weed. Aug. *w.* 1 to 2 f. 4. rb. mh. &c. W. Medicinal?

CLXIII. *PODOSTEMEÆ.*—Thread-foot tribe.

730. Podostemum ceratophyllum, *Michx.* Thread-foot. Jul. 4. Closely attached to loose stones in shallow water of the Ohio and Kentucky rivers. *Pursh.*

CLXV. *CERATOPHYLLÆ.*—The hornwort tribe.

731. Ceratophyllum demersum, *Linn.* Hornwort. Coontail. Jul. Submersed. 1 to 2 f. 4. pl. O.

732. C. submersum, *Linn.* Jul. Submersed. 4. pl. Wor. O.

Division 2.—Monopetalous plants.

CLXVI. *ILICINEÆ.*—The holly tribe.

733. Ilex opaca, *Ait.* American holly. June. *w.* 10 to 15 f. ♄. Sandy woods. Ky. *St.*

734. Prinos verticillatus, *Linn.* Winter berry. False alder. June–Jul. *w.* 6 to 8 f. ♄. Swamps, &c. O. The bark and berries are astringent, tonic, antiseptic. Bart. i. 203. Big. iii. 141.

735. P. lævigatus, *Pursh.* Jul. 6 to 8 f. ♄. Swamps. Mo. Ter. *Jas.* W. *Bk.*

736. P. lanceolatus, *Pursh.* June. ♄. (6 to 8 f. Barrens. wp. Duncan's plains, near Columbus, O.)?

CLXIX. *SAPOTEÆ.*—The Sappodilla tribe.

737. Bumelia oblongifolia, *Nutt.* ♄. 18 f. Lead mines near St. Louis. *Nutt.*

CLXX. *ERICEÆ.*—The heath tribe.

§1. *Ericeæ.*—Heath like.

738. Arbutus uva-ursi, *Linn.* Bear-berry. Ap.–May. Pale *r.* Evergreen, trailing vine. ♄. Mts. *Bk.* Sandy situations. Presque Isle, Lake Erie. About the Great Lakes. *Schoolcraft.* Astringent, antilithic. Big. Med. Bot. i. 66.

739. Gaultheria procumbens, *Linn.* Spicy wintergreen. May–Jul. *w.* Creeping evergreen. 4 to 6 i. 4. Woods. rs. O. Ky. Stimulating, anodyne. Bart. i. 78. Big. ii. 27. Also astringent, emanagogue, antiseptic and diaphoretic. Beach's Mat. Med.

740. G. hispidula, *Muhl.* Creeping wintergreen. Ap.–May. *w.* Creeping, evergreen. ♄. Properties similar to the last?

741. Andromeda arborea, *Linn.* Sorrel tree. Jul. *w.* 40 f. ♄. Mar. O. Ky. Refrigerant, &c. Raf. Med. Fl. Leaves taste much like sorrel.

742. A. polifolia, *Michx.* Wild rosemary. June. *w* & *r.* 1 f. ♄. Sphagnous swamps. Mich. *Eat.*
743. A. calyculata, *Linn.* Ap.–May. *w.* 3 to 4 f. ♄. Swamps. Louisville. *M'Murt.*
744. A. mariana, *Linn.* June–Jul. *w* and pale *r.* 2 to 3 f. ♄. Sandy soils. Louisville. *M'Murt.*
745. A. racemosa, *Michx.* June–Jul. *w.* 4 to 6 f. ♄. Swamps and wet woods. Louisville. *M'Murt.*

§2. *Rhodoraceæ.*—Rose bay like.

746. Rhododendron maximum, *Linn.* American rose bay. June–Jul. Pale *r.* 10 to 15 f. ♄. Swamps. bg. Ky. *St.* Stimulant, narcotic, &c. Big. Med. Bot. iii. 101.
747. Kalmia latifolia, *Linn.* Mountain laurel. Calico bush. June–Jul. Rose coloured flowers. 4 to 10 f. ♄. Hills, &c. O. Ky. rs. Stimulant, narcotic, &c. Big. Med. Bot. i. 133.
748. K. glauca, *Ait.* Glaucous kalmia. June–Jul. Pale *r.* 12 to 18 i. ♄. Sphagnous swamps, Mich. *Eat.*
749. K. angustifolia, *Linn.* Sheep laurel. June–Jul. *r.* 12 to 18 i. ♄. Sandy woods. Louisville. *M'Murt.*
750. Azalea nudiflora, *Willd.* Early honeysuckle. May. *r.* 2 to 6 f. ♄. Ky. *St.*
751. A. viscosa, *Willd.* White honeysuckle. June. *w.* 5 f. ♄. Louisville. *M'Murt.*
752. Epigæa repens, *Linn.* Trailing arbutus. Ground laurel. *w* & *r.* Trailing evergreen. ♄. Pine hills. Newark, O. Ky.

CLXXII. *VACCINEÆ.*—The bilberry tribe.

The bark and leaves of these shrubs, are astringent, slightly tonic and stimulant. *Lind.*

753. Vaccinium stamineum, *Linn.* Deer berry. May–June. *w.* 2 to 3 f. ♄. Dry woods. rs. O. Ky. Used by some as a substitute for Arbutus uva-ursi. Mr. Miles, (page 86 of his Domestic Remedies,) says that this plant possesses diuretic, tonic and slightly astringent properties.
754. V. resinosum, *Ait.* Black whortleberry. May–June. Reddish *g.* 2 to 4 f. ♄. Woods and hills, Ky. *St.*
755. V. corymbosum, *Linn.* High wortleberry. June. Purplish *w.* 4 to 8 f. ♄. Swamps and wet woods, O. Ky. *St.*
756. V. frondosum, *Linn.* Whortleberry. Blue tangles. Ju. *w.* 3 to 5 f. ♄. Sandy woods, Ky. *St.*

757. Oxycoccus macrocarpus, *Pursh.* Cranberry. June. *w.* or pale *r.* Prostrate. ♄. bg. Near Lake Erie. The fruit possesses an agreeable tartness. Immense quantities are collected near the Lakes.

CLXXIII. *PYROLACEÆ.*—THE WINTERGREEN TRIBE.

758. Pyrola rotundifolia, *Linn.* Round-leaved wintergreen. Shin-leaf. July. *w.* 10 to 14 i. 4. Woods. O.
759. P. elliptica, *Nutt.* July–Aug. *w.* 6 to 10 i. 4. Dry woods, O.
760. P. minor, *Linn.* June. 4. Mich. *Eat.*
761. Chimaphila umbellata, *Pursh. Eat.* Pipsissawa. Prince's pine. July. *g–w* and *p.* 4 to 6 i. 4. Woods. Northern part of Ohio? Diuretic, tonic, vesicatory. Bart. i. 28. Big. ii. 15.
762. C. maculata, *Pursh, Linn.* Spotted wintergreen. July. *r–w.* 3 to 4 i. 4. Sandy woods. Hills. O. Medicinal virtues similar to the preceding, though not so much concentrated.
763. Monotropa uniflora, *Linn.* Indian pipe. June. *w.* 5 to 8 i. 4. sw. O. Ky.
764. M. lanuginosa, *Michx.* Tobacco-pipe. Aug. *w.* 4 to 6 i. 4. Roots of trees. Ky. *St.* West Virginia. *Paddock.*

CLXXIV. *CAMPANULACEÆ.*—THE BELL-FLOWER TRIBE.

765. Campanula americana, *Linn.* Wheel-flower. July–Aug. *b.* 2 to 4 f. 4. Thickets. O. Ky.
766. C. amplexicaulis, *Michx.* Clasping bell-flower. May–July. *p.* 8 to 12 i. ☉. Fields. W.
767. C. aparinoides, *Pursh.* Prickly bell-flower. June–July. *w.* 1 f. ☉. wp. O.

CLXXV. *LOBELIACEÆ.*—THE LOBELIA TRIBE.

768. Lobelia cardinalis, *Linn.* Cardinal flower. July–Aug. *r.* 2 to 3 f. 4. Wet woods. O. Ky. Acrid, anthelmintic. Bart. ii. 180.
769. L. syphilitica, *Linn.* Blue cardinal flower. Sept. *b* & *w.* 2 to 3 f. 4. wp. ow. bg. O. Ky. Diuretic, purgative, anti-syphilitic. Bart. ii. 211.
770. L. puberula, *Michx.* Sept. *b.* 2 to 3 f. 4. mh. bg. O. Ky.
771. L. inflata, *Linn.* Indian tobacco. Aug. Pale *b.* 1 f. ☉. Fields and woods. W. Emetic, sudorific, expectorant. Bart. i. 189. Big. i. 177. Beach's Mat.Med.

772. L. claytoniana, *Michx.* Clayton's lobelia. Jul.–Aug. Pale *b.* 1½ to 2 f. 4. dp. wp. O. Ky.
773. L. kalmii, *Linn.* Kalm's lobelia. Jul.–Aug. *b.* 12 to 20 i. 4. wp. O.

CLXXXI. *CUCURBITACEÆ.*—THE GOURD TRIBE.

774. Momordica echinata, *Muhl.* Balsam apple. Aug. *w.* Climbing. ⊙. Banks of streams. O. Mich. Mo. Riv.
775. Sicyos angulatus, *Linn.* Single-seeded cucumber. June–Jul. *w–g.* Procument vine. ⊙. bt. Banks of streams, W.

CLXXXII. *PLANTAGINEÆ.*—THE RIB-GRASS TRIBE.

776. Plantago cordata, *Lam.* P. asiatica, *Spreng?* June–Jul. 12 to 18 i. 4. rb. Banks of streams. W.
777. P. media, *Linn.* Jul. 3 to 8 i. 4. Fields. Miami country.
778. P. major, *Linn.* Common plantain. Aug. 8 to 12 i. 4. Fields. Intr. W. Healing, refrigerant, antiseptic. *Beach.* Other species have similar virtues.
779. P. glabra, *Nutt.* Arid situations. Plt. *Jas.* Germantown, O. Frank. Mar. Wor. O?
780. P. lanceolata, *Linn.* Rib-wort. Snake plantain. May–Sept. 6 to 12 i. 4. Pastures, &c. Intr. Ky. *St.* Opposite Cin. O.
781. P. virginica, *Linn.* Dwarf plantain. June. 3 to 8 i. ♂. Sandy soils. Ky. *St.*
782. P. pusilla, *Nutt.* June. 2 to 3 i. ⊙. Sandy hills. W. *Bk.* Mo. Ter. *Nutt.*
783. P. gnaphalioides, *Nutt.* Jul. ⊙. Mo. Ter. *Nutt.*

CLXXXIV. *DIPSACEÆ.*—THE SCABIOUS TRIBE.

784. Dipsacus sylvestris, *Linn*, Wild teasel. Jul. *p.* or *b.* 3 to 5 f. ♂. Fields. bt. W.

CLXXXV. *VALERIANEÆ*—THE VALERIAN TRIBE.

785. Valeriana pauciflora, *Nutt.* i. 20. Western valerian. *r.* 1½ to 3 f. 4. sw. bt. W. Tonic, antispasmodic, vermifugal(?)
786. Valerianella radiata, *De Cand.* Wild lamb lettuce. May. *w.* 1 f. ⊙. Fields, W.
787. V. chenopodifolia, *Pursh, De Cand.* 8 i. ⊙. Open woods and meadows, Miami country. *Frank.*

NOTE.—A supplementary table will be given, at the conclusion of this Synopsis, in the next number of the Western Journal, which will make the reference to authorities for specific names complete.

ART. II.—*Thoughts on the Moral and Intellectual Energies of Man in the Northern and Southern Hemispheres.* By Dr. JAMES LAKEY.

If a travelling philosopher from Jupiter or Saturn, a modern Micromegas, were to land upon our little earth and become acquainted with all its written languages, among the many novelties that would attract his attention, would be the amazing difference in mental energy between the men of the northern and southern hemispheres.

The fact of the superiority of the north over the south is admitted by all observing men, but, as yet, I believe no one has assigned any physical cause for this apparent phenomenon.

I assume an hypothesis,—and give the following as two of the principal causes.

1. The greater obliquity of the sun's rays in the southern hemisphere.

2. The immense surface of ocean lying in the southern hemisphere.

The man of the north enjoys about eight days more of the annual sun than his brother of the south, which, allowing 6000 years for the age of the world, makes an aggregate of 131 years for 180 generations of men. Every astronomer knows that the sun passes sooner through the southern signs than through the northern;—that is, that the sun travels from the equator to Capricorn and from thence back to the equator in a shorter space of time than from the equator to Cancer, and from Cancer back to the equator. This is caused by the earth's place in her orbit being nearer the sun in winter than in summer by about 3,000,000 of miles;—the earth being in her *perihelion* in December and in her *aphelion* in June. She of course would move swifter in her orbit as she approached the immense body of the sun. The sun himself not being exactly in the centre, but in the lower *focus* of the earth's orbit,

adds to this inequality, and gives more of his vertical rays to the north than to the south.

It is a familiar truth in philosophy that a cause, however small, steadily and incessantly operating for ages, must produce stupendous effects. These causes having existed ever since creation, let us look at their effects upon the men and animals that inhabit the respective sides of the equator.

I propose to establish the following facts.

1. That about five sixths of the land on the globe lies in the northern hemisphere.

2. That this land is generally far superior in fertility and productiveness.

3. That the men and land animals are superior in physical, moral, and intellectual energy.

The northern hemisphere embraces the whole of North America and about one fifth of South America. The equatorial line cuts South America from the city of Quito on the west, to the mouth of the majestic Amazon on the east. The northern hemisphere takes in the whole of Europe and Asia from Borneo to Behring's Straits. It also includes about three fourths of the African peninsula, extending southerly from Gibraltar to the Gulf of Guinea. From thence the equator, leaving the island of St. Thomas on the north, extends east to the Indian Ocean, cutting the northern section of the barbarous province of Zanguebar. The amount of land contained in the southern hemisphere, compared with that of the northern, is very small. It contains the southern section of South America, South Africa, New Holland, New Zealand, Papua, part of Polynesia, and a few islands.

The southern hemisphere is much colder than the northern. Cape Horn and Sandwich Land lying between 54 and 58 degrees of south latitude, are rendered totally uninhabitable to civilized men, by the intensity of the cold. Edinburgh, Copenhagen, Moscow, Stockholm and St. Petersburgh, lying in equally high latitudes north are the crowded seats of civilization, science and commerce. Modern geographers tell us that in latitude 48 south, the *summer temperature* of the air is

not warmer than the *winter temperature* of 42 north;—in other words, that the summer of Patagonia is no warmer than the winter of Boston, Italy and Spain.

The heat of the warmest months (December and January) in Patagonia is not more than 45, 5 while at Petersburgh, lying 11 degrees nearer to the Pole it is 66!!!

Snow falls almost every day in South America in latitude 52 and 53, and the thermometer rarely rises above 52 degrees. Sir Joseph Banks lost two of his attendants from extreme cold in this region during a night in midsummer. Human habitations are found as high as 78 north—but none higher than 54 south.

How can this immense disparity be explained? Will the eight days' annual absence of the sun, added to the wide waste of water in the southern hemisphere cause this great diminution of heat? I know of no other causes—and these having been in constant operation for ages, have established the superiority of North over South America. The superiority of North to South Africa from the same causes is equally unquestionable. Hence the second position is established without difficulty.

I now come to the third position which has been laid down as an hypothesis,—not doubting but at some future period, abler pens and more thorough research will sustain both the theory and the facts. I assert, then, that the man of the south is, and ever has been, inferior in mental energy to the man of the north; and that this inferiority is chiefly owing to climate. That climate, even in the same latitude, and in the same hemisphere, exercises great influence upon men will not be denied. What but climate could create the amazing difference between the Hollander and the Frenchmen, the Irish and English, &c.? They all belong to the Caucasian race of men. Let us examine this subject in detail.

The Spaniards at the commencement of the 16th century found the Mexicans further advanced in the arts than the Peruvians. Cortez had fiercer foes to encounter and conquer than were those who fell beneath the sword of the illiterate Pizar-

iro. Three hundred years have elapsed, and the contraststill remains. The mere politician who never troubles his head with theories, tells us, that Mexico will take her rank among the nations of the earth sooner, and that her station will be higher than that of Peru, La Plata or Chili. Let it be remembered that these Hispanio-Americans descended from the same ancestors; and that these ancestors were emigrants from one of the richest, most renowned and warlike of the European nations. The modern Spaniards, according to Dr. Morse, have more of the ancient Roman blood in their veins than any other existing nation. Mexico and Colombia have produced Iturbide and Bolivar,—but where are, or ever were, the distinguished men born south of the equatorial line?

Of the African peninsula we observe that in the northeast lies ancient Egypt, the parent of civilization and science—on the north lie the Barbary states, degenerated it is true, but even Morocco, Tunis and Tripoli are infinitely superior to any South African nation. North Africa has produced a Hannibal, a Jugurtha, a Syphax, a Cyprian, and a host of distinguished characters. Ancient Ethiopia, now called Nubia and Abyssinia, must have been a state of great wealth and importance. Sacred history informs us of Zerah, the Ethiopian, who invaded Palestine with 1,000,000 of soldiers. Owing to the want of figures in the early ages—the carelessness of copyists, and the credulity of commentators, this incredible number still remains in our Bibles. The mistake in numbers does not, however, invalidate the fact or weaken the argument. Every one believes that Xerxes invaded Greece —but none but school-boys believe that he brought with him 5,000,000—3,000,000, or even 1,700,000 men. The Ethiopian general, some seven or eight hundred years before Christ, invaded Judea with an army of, no doubt, 100,000 combatants. He must have marched an immense distance, and nothing but a certain degree of civilization and industry could have supported such an army. The same resistless spirit of conquest that led this black Alexander and his warlike Ethiopi-

ans to Asia, would have led them to South Africa, had there been any thing there to invite an invader.

At a later period the powerful republic of Carthage ruled the Mediterranean. Her merchants, seamen, and soldiers were in some respects to the ancient world what those of Great Britain are to the modern. She planted colonies in Cadiz and Cornwall, and sat like a queen among the nations.

But what of South Africa? History has not recorded nor romance feigned the existence of any authors, heroes or statesmen in South Africa. The North Africans have degenerated—the South Africans have not, for they have ever been savages. I speak of the native population. No ruins of ancient cities show that civilization ever existed south of the line.

The descendants of the Dutch, French and English unquestionably degenerate at the Cape of Good Hope. The lion of the Cape is less fierce and courageous than the lion of the Lybian and Sahara desarts. The same is said to be true of other animals. The Romans and Carthagenians obtained their lions and elephants wholly from the north. The North Africans were expert horsemen in early times—the South Africans were not, and are not. The North African "trained him to his hand the embattled elephant laden with war." The South African never has tamed the elephant even for domestic purposes! In short, it may be asked where is a single civilized nation that exists, or ever did exist, in this peninsula, south of the line? Has the entire southern hemisphere, from the equator to the south pole, produced one distinguished general, one author, poet, or legislator? I think not—or if any one has been accidentally born there, he must have been the issue of northern parents.

Will it be said that the southern hemisphere was settled later than the northern? Admitted; but 300 years have elapsed since the Spaniards and Portuguese planted themselves in Paraguay and Brazil—and are not three centuries sufficiently long to test the principle? The aboriginal inhabitants of this hemisphere are inferior to those of the north.

The natives of New Holland are the most degraded, debased, and filthy savages on the face of the earth.

The New Hollanders, although living between 10 and 40 degrees of south latitude, fall far below in point of intellect the Esquimaux, the Greenlanders, and the Laplanders. Do not the descendants of the Europeans degenerate in the southern hemisphere? I think that the lapse of a few ages will add new proofs to this hitherto unexplained fact;—and that the continent (or island) of New Holland, even if peopled by Englishmen, will never rival or even equal in importance the Canadas.

The aborigines inhabitants of South Africa have stubbornly resisted all efforts directed to their civilization. The filthy and abominable habits of the Hottentots are well known. An untanned sheepskin serves him for a garment in summer and winter, and for a winding sheet when he dies. Let us look at these South Africans closer. Their country has no doubt been settled at least 3000 years, and they could have had access by land to Egypt and from thence to Arabia, the two cradles which once contained all the science of the the infant world. They must have traversed the torrid zone, but a few degrees of travel would have brought them to the head waters of the Nile, from whence they could have floated down upon the southern shores of the Mediterranean. Our savage ancestors, the barbarians of the north, travelled a much greater distance by land in order to overturn and ravage the Roman empire. The North American Indian would have made a small thing of such a journey to have gratified his thirst for war and revenge.

I have said that the descendants of the Dutch have strangely degenerated at the Cape, so say the English writers, and it is no doubt true. The English themselves may soon degenerate and change, as their countryman John Newton said, from WHITE men to BLACK, not in color but in disposition.—They conquered the Cape in 1806, but a little over one quarter of a century is not long enough to shew a great degree of degeneracy. The English population at present bears no

proportion to the numbers of Belgo-Africans who surround it. If the Dutch have degenerated at the Cape, why have not the descendants of the same nation degenerated at Eustatia, at New York and New Jersey?

Are the people of the southern hemisphere destined to be forever a prey to ignorance and barbarism? The Christian philanthropist will say "no!" They may advance, but reasoning from what has been, and now is, their position will ever keep them at an immeasurable distance behind their brethren of the north.

Let the isles of New Zealand be compared, not with Spain or Sardinia, which lie at an equal distance from the line—nor with Great Britain, which resembles them in climate, but with Iceland. In every thing depending on human exertion or human virtue, the Icelander is superior to the New Zealander.

A good history of Brazil, written by a native of that country, is, I believe, a desideratum in the republic of letters.—There are, no doubt, many of the descendants of the Dutch in that region. If that vast country, equal in extent to the United States, has ever produced any eminent men in the arts of war or peace, the fact is not generally known. It will be said that Portugal herself has degenerated. I know this, but it was not during the period of her degeneracy that she conquered and colonized the immense territory of Brazil. She was then in the vigor of manhood, her sailors, mathematicians and merchants stood among the foremost of Europe.

Will it be said that these remarks apply with equal force to the entire torrid zone? I think they do not; but am willing to admit that the shades of difference are not so apparent between the southern and northern sections of the torrid zone, as between the southern temperate zone and the northern temperate zone.

Let us, then, leave the burning zone, which the ancients erroneously asserted to be uninhabitable and impassable, and which all the moderns admit to be unfriendly and depressing to intellectual activity.

Before speaking of the north and south temperate zones, let us take a short view of the Polar circles. The Arctic circle is said to contain 2,520,000 square miles of land, which includes the greater part of Greenland, the north end of the American continent, and the entire northern boundary of the Russian Empire.

Most of this land is uninhabited and uninhabitable. It furnishes, however, some valuable articles for commerce, and the Greenlanders and Laplanders are said to be industrious, happy and contented.

What has the Antarctic Circle compared with this? Nothing but ice and an open sea. Geographers tell us of 200,000 square miles of land in the southern circle, but have said nothing of its latitude, and we may search in vain for any inhabited or inhabitable land. The antarctic circle must be composed nearly or wholly of water.

The temperate zones, then, are the true abode of civilized men. A bare comparison between the northern and southern temperate zones would seem sufficient to establish the immeasurable superiority of the former in every respect.—The northern zone contains much the most land.* It embo-

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*According to the best geographers, the superficies of the earth contain 190,992,000 square miles; of which the water surface is 160,152,000, and land surface, or area, 38,840,000, or not quite one fourth part of the whole superficies.

TABLE I.—Summary of Oceanic Area, Southern, Indian and Pacific Oceans, - - - - 126,045,000
Atlantic, Mediterranean, Black, Baltic, Hudson's Bay and Arctic Oceans, - - - 33,857,000
Caspian Sea, Lakes in America and other smaller collections of water, - - - - - 250,000

Area of water, - - - 160,152,000

TABLE II.—Land Area.

Polynesia, or Oceanica, - - - -	100,000
Austral Asia, - - - - -	3,000,000
Asia, - - - - -	11,500,000
Europe, - - - - -	3,020,000
Africa, - - - - - -	8,000,000
America (including Greenland,) - -	13,220,000
Amount of Land area, - - -	38,840,000

dies most of the population, knowledge, and wealth of our little world. Let us take a bird's eye view of the northern zone, and first on our own continent. It commences about the middle of the Mexican Gulf; the tropic of Cancer crosses the republic of Mexico and cuts the southern end of the Californian peninsula. Between this and the Arctic circle, as the continent grows broader, lies an immense tract of land including four-fifths of Spanish North America, the United States, and all the continental parts of British, Danish, and Russian America. This tract contains an area of more land than the entire southern zone.

Little more thau 300 years have elapsed since white men planted themselves upon the soil of North America, and now she exceeds in population, property, and in acres of cultivated land, the entire temperate zone of the southern hemisphere.

Our own republic possesses and exercises more political, religious and moral influence, and she has been settled but about two centuries.

At present I shall leave Europe, and Asia wholly out of the question, well aware that those countries have been called the cradles of the human race, the store-house and nursery of nations, &c. and that the over-whelming superiority of these regions ever the southern zone has been at-

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TABLE III.—Land in the several Zones.

Torrid Zone,	13,600,000
Southern Temperate Zone,	3,560,000
Northern Temperate Zone,	17,960,000
Southern Polar Circle,	200,000
Northern Polar Circle,	2,500,000
Total,	28,840,000

TABLE IV.—Population of the earth.—(According to M. Adrian Babbi.)

	Population.	*Square Miles.*
Europe,	227,700,000	2,793,000
Asia,	390,000,000	12,118,000
Africa,	60,000,000	8,516,000
America,	39,000,000	11,046,000
Oceanica,	20,000,000	3,100,000
Total,	727,000,000	37,573,000

tributed to moral rather than physical causes, such as longer settlements, &c. &c. &c. &c.

It would be absurd to deny the immense influence of moral causes. But too much has been attributed to them. If the descendants of intelligent Europeans degenerate when transplanted to the south of Capricorn, and if this degeneracy is constant and uniform from generation to generation, it must be owing not to moral, but to physical causes.

Empires have arisen and fallen in Europe and Asia.—Whole nations have degenerated and become extinct.

> ——————"* * * Empires die!
> Where now the Roman? Greek?
> They stalk an empty name,
> * * * * * * * *
> Though half our learning is their epitaph."

This can be proved by ruins as well as written records.—But the people of the southern zone have never degenerated! and why? They were never civilized. They had nothing to degenerate from. No writ of ejectment could reach or affect a houseless pauper. Having had no grandeur, they have had no decadence.

Let us look upon the southern zone, upon our own continent—evidently the best part of that zone. The tropic of Capricon cuts from Rio Janerio on the east to the northern end of Chili on the west,---leaving the greater part of Buenos Ayres, a small corner of Brazil, all Chili and Patagonia, together with some unimportant islands to the south, which go to make up the South American temperate zone.

Now these countries have been longer settled than the United States, and what is their present situation? Low enough, as far as intellect is concerned. The soil of Buenos Ayres is little cultivated, and the intellect of the people still less. The natives of this province have as yet manifested but a small degree of that intelligence, ardent energy, and enterprise so necessary for a young nation. Most of the officers that fought the battles of their revolution were foreigners. The people are well described in the following extract from Flint's Geography:

"It has been computed that the shepherds of these plains [La Plata] tend 12,000,000 of oxen. But in this delicious climate, and on this luxuriant soil, the people degenerate to DEMI-SAVAGES, and are ignorant, indolent, and miserable. They live in mud cottages, and gaming is their predominant passion." Vol. ii. p. 163.

Before their revolt, the Buenos-Ayreans had colleges but no printing presses

It is customary to account for the debasement of these people by attributing the cause *wholly* to the despotism of the government, and the tyranny of the priests. This will not do.—Learned men flourished under the rule of Louis 14, and Cervantes and Quevedo wrote and lived under the iron despotism of old Spain. The absolute monarchy of Prussia has myriads of learned men. Spain herself was never free—yet she had literature.

Patagonia is abandoned to desolation and barbarism. Terra del Fuego is in the same latitude with Edinburgh. South Georgia, South Shetland and Sandwich land, all lie in the southern temperate zone,—but they are bleak and barren rocks, inhabited only by sea-birds and seals.

The northern zone of Africa includes all the native science that exists in that peninsula. The southern zone embraces a territory of about 11 degrees in length, embracing Caffraria, and Cape Colony. This last has been in possession of highly civilized christian protestant nations for nearly two centuries. The Dutch planted the proud standard of their republic at Cape Town in 1652. It was the asylum of French protestants who fled from religious persecution. The English succeeded the Dutch in 1806. The colony is said to contain 12,000 white inhabitants, evidently in a state of degeneracy. Here it cannot be said with truth as has been asserted of Buenos Ayres and Brazil, that the people of the parent states have degenerated.

France, England and Holland stand higher in civilization and science than they did in the 17th century. The historian of the 20th century will be able to discern the difference be-

tween the descendants of Englishmen at the Cape and the posterity of Frenchmen in Algiers.

The southern zone includes rather more than half of New-Holland and the whole of Van Dieman's land. The importance of these countries to the British crown is undoubtedly great;—but whether they are ever to be the abode of a dense and civilized people, is an unsettled question. If the theory which I have endeavoured to defend by collecting and arranging facts be correct, these countries can never rise to importance. Centuries will roll away and the descendants of Englishmen will continue to be ruled by a remote island. The Anglo-Australian will fear the rod of a master 15,000 miles off.

Much has been said of the exuberant fertility of Van Dieman's land. These accounts are to be received with caution. The natives of this island are among the most degraded of the human race. They are ignorant of agriculture, of the services to be derived from the use of animals, and of the use of metals. If the soil be fertile, they derive little or no sustenance from it. Caterpillars, serpents and spiders enter largely into an Australian bill of fare.

If at some future period some powerful nation should arise in the southern zone and become to that region what Great Britain and France have been, and now are to the northern zone,—why then this theory must be abandoned as erroneous, and these speculations be buried with other rubbish. It matters not whether this powerful nation, *that is to be*, be Anglo-Australian, Hispanio-American, Lusitanio-American, or Anglo-Belgo-African. If on the contrary the northern zone should continue to hold her immeasurable and unquestionable preponderance, the fact of the inferiority of the south will be too firmly established to be shaken.

The degeneracy of man in every degree of longitude in the southern zone is too uniform and general to be the result of accident or moral causes. The effect of physical causes will be understood and asserted by geographers and statesmen—and have weight with all commercial nations in plant-

ing colonies. Time will show the kind of men that are to inhabit Australia.

Dr. Good says: "the natives of New South Wales have no aptitude and learn nothing. The actual possession of the country by a British public and a British government, with a perpetual intercourse and the kindest encouragement, has made little or no impression upon the natives."

Dr. Caldwell says: "New South Wales extends beyond the 30th degree of south latitude, and has in many large sections a climate peculiarly delightful and healthy. Yet the following is the description of its inhabitants, given by Malte Brun. "New South Wales seems to offer their *native* varieties of inhabitants *all* belonging to the race of Oceanian negroes. In the neighborhood of Glasshouse Bay the savages have large heads, which in shape resemble the Ourang Outang. Their very limited intellects, their hairy bodies, and habitual agility in climbing trees, seems to bring them near to the monkey character. * * * In many other parts of the Oceanian continent, where the climate is by no means intensely hot, the people are of the same degraded character. They have woolly hair, set in tufts, a skin of a soiled and faded black, narrow, low retreating foreheads, flat noses, thick lips, a projecting muzzle, large and strong maxillary bones and teeth, and a defective chin, or rather no chin at all, their mouth being placed almost at the bottom of the face. Their stature is short, and their intellectual endowments extremely limited. They are in all respects inferior to the negroes of Africa."

These, then, are the New Hollanders—and here is one of the largest spots of arable earth in the southern zone. Where can we find the counterpart of this humbling description? No where between the tropic of Cancer and 40 north latitude. No where between 40 and the north pole. Such degraded and imbecile beings as these are not to be found even in the Arctic circle. How shall we account for this? Shall we adopt the learned Doctor's ingenious theory of man? Shall we suppose that the human race sprung from different origi-

nal stocks? I shall not meddle with this recondite subject—the origin of man. I think we are to look to physical causes as having produced man as he is, and that the southern zone abounding in water and air is better calculated for birds and fish than for men.

The situation of New Zealand as it respects latitude (between 31 and 48 S.) is more favourable in the southern zone than is Great Britain in the north. Who are the New Zealanders? and what are their habits? They have shown themselves the most ferocious savages that the world has witnessed. Christian missionaries sent there for their conversion have been murdered and devoured,—literally eaten by these benighted cannibals.

"Attacked by intense cold, (says the Westminster Review,) and buffetted by furious winds, these savages have gradually assimilated their character to that of their climate, and become rude, fierce, boisterous and unpitying. There country producing little or nothing during the winter months, they are forced during summer, when fish is abundant and easily caught upon their coasts, to smoke and dry vast quantities, which are laid up against inclement weather, as well as to provide against the chance of being besieged in their abodes by inimical tribes * * * * * they are cannibals from necessity. * * * * * Here, without the aid of "religious prejudices," we have the whole theory of cannibalism. Men, tortured by insufferable hunger, cast "wolfish eyes" upon each other, and by degrees conquering the strong repugnance which all animals feel to prey upon their own species, exactly from the same cause which impelled the African hyenas mentioned by Bruce, to eat their companions. * * * There is no nation, however, so openly and disgustingly addicted to anthropophagy as the New Zealanders. Their unnatural and ferocious appetite delights in the taste of a human victim. "In consequence of their abominable customs, (says M. Lessen,) these people have acquired a decided appetite for human flesh, and reckon among their *white* days those solemn festivals in which they can eat their fill of their favo-

rite food. A chief of a New Zealand village confessed to the French officers that he experienced extraordinary gratification in devouring a corpse, and informed them that the brain was the most delicate bit, though the haunches were more substantial!! * * * * * The New Zealanders imagine that the spirits of their victorious fathers hover in the blast over their native villages, and then plunging into the glittering waves near the north Cape, repair to the Elysium prepared for them, &c. The souls of those on the contrary, who are slain in battle and devoured by their enemies, are eternally unhappy, and it is said to be for this reason, from a spirit of revenge that would do honor to the heart of a Grand Inquisitor that they are so anxious to feed upon their foes. They are desirous not only to have them dead but damned!'

It would be difficult to produce parallel instances of cannibalism in the temperate zone of the north, or even in the Arctic Circle. European Zealand, which gave the name to the South Sea Zealand, contained, in former ages, pirates of the fiercest kind;—but we have no record of cannibals. Great Britain has been peopled by pagans, by ferocious and warlike savages, but Cesar found no cannibals among the ancient inhabitants of that Island. The learned London Reviewers say, that the New Zealanders are cannibals from necessity. If so, with due deference let it be asked, does not the same, or even a greater degree of *necessity* exist within the limits of the Arctic Circle? Yet the Greenlanders, the Samoides, and the Esquimaux are not man-eaters.

I shall close this letter with a few more facts and arguments, without attending to the niceties of arrangement. Navigators have penetrated the Arctic Circle to within 10 or 12 degrees of the north pole, while few or no ships ever entered the Antartic Circle, and no land is laid down there. Men have braved the Arctic regions with impunity, and passed the long winters as high as 74 or 75. It is far from certain that animal life exists at all, even under the ice within the Antartic Circle.

Learning has flourished to some extent near the verge of

the north frigid zone. Iceland and Lapland have had their learned men. Linnæus was reckoned among the *hyperborean* learned, but whoever heard of the Australian learned? Whoever heard of the Polynesians learned, or of *any* learning between Capricorn and the south pole?

Great Britain alone, with her 24,000,000 of inhabitants, and her 100,000 square miles, (about half the size of New Zealand) possesses and exercises more moral and physical force than the whole southern zone, with her 4,000,000 of square miles of land, and her uncounted millions of semi-barbarians, upon whose territory the sun never sets.

The Arctic Circle has land animals of prodigious size and strength,—the Antarctic having no land, can have no animal life but what inhabits water. It may be doubted whether there is any land animal south of the tropic of Capricorn equal in size, strength and ferocity to the grizzly bear of the Rocky Mountains, or to his white brother of the Arctic Circle. The south may be superior to the north in the number and size of its ocean animals.

I have said that the hebitude and imbecility of intellect manifested by the people of the southern zone, was not wholly owing to the eight days' annual absence or obliquity of the sun; although that stands first in the list of causes. The observer in examining the southern zone is struck with the fact of its having "such wastes of ocean and such scanty land." It is composed almost wholly of water.

> "* * * Cynthia when to *southern* skies arrived,
> Spends her sweet beam upon the barren main."

Does not the immense mass of water have an unexplained, but deleterious effect upon the atmosphere, soil and men of these regions? Is not the latent heat of the earth less at the southern tropic in consequence of being surrounded by such vast bodies of water?

Future discoveries must settle these questions.

The earth was evidently not made for man and land animals alone. By far the greatest bulk and weight of animal life exists in water, either beneath the ocean or in fresh water.

Nine-tenths of the southern hemisphere being covered with water, the countless millions of ocean animals which inhabit there must far outnumber those who plough the great deep of the northern hemisphere.

In calling attention to this new theory, I have endeavored to be sparing of hypotheses and prodigal of facts.*

Cincinnati, December, 1834.

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*The Ethiopians are a people between the extremes of barbarism and civilization. Their garments are of cotton, though those of a more opulent kind are of silk. * * * Unprovided with salt at home, they purchase it from abroad for its weight in gold.—*Buffon, page* 161.

In Norway and Lapland the Scotch Fir-tree attains to a height of 60 feet in latitude 70°; and at *Tornea*, at the head of the Gulf of Bothnia, in latitude 66° the Birches are described by Von Buch as "*magnificent.*" * * * In Norway, *Barley* sometimes ripens in favorable aspects, under the 70th parallel of latitude.

The Cape of Good Hope just falls within the latitude adapted to the grape; and a considerable quantity of wine is annually exported from that settlement. It is of very inferior quality to the wines of Europe, and northern Africa, having an unpleasant *earthy* taste, which is said to arise from the clayey nature of the soil.—*Burton's Geography of Plants.*

In New-Holland, a certain species of trees which compose the principal forests, cast or *shed* their extreme bark down to the white *liber* every year; so that though the leaves are ever green, there is a "fall of the bark" answering to the annual "fall of the leaf."—*Mudie's Observations on Nature.*

Separated from the continent by the Straits of Magellan spreads the large but desolate country of Terra del Fuego, and about 300 miles to the north-east of the latter stands the still more barren and inhospitable group of the Falkland Islands.—*Darby.*

The Hottentots seldom live more than forty years, and of this short duration of life, the causes doubtless are, their being so fond of filth, and residing continually in the midst of it; as also their living upon meat which is tainted or corrupted, of which indeed their nourishment chiefly consists.—*Buffon, page* 164.

The Hyena Dog.—This dog is a native of Southern Africa, and is a serious nuisance to the frontier settlements at the Cape.—Its ferocity seems to be *untameable.* Mr. Burchell, who first carried it to England, kept one for twelve months, at the end of which period even its feeder did not dare to lay his hand upon it. The Australian dog also is mentioned as exceedingly voracious and fierce.—*Buffon.*

Swine's flesh—it is remarkable, is rejected by the Caffres with abhorrence. The same is the case with the feathered tribe to some extent; none of them keep poultry of any sort; and eggs as an article of

Art. III.—Complicated Abdominal Disease.

An account of the last illness, death, and post mortem appearances of the late Dr. Anderson Judkins, of Steubenville, Ohio. By John Andrews, M. D.

The following case may present nothing new, either in its pathology or therapeutics. but as the subject of it was a most worthy member of the profession, and had many friends who are readers of the Western Journal, and reside in various parts of our State, a report of his case may not be inadmissible. Very few physicians in the West, were more anxious for the improvement and elevation of our science, and none surpassed him in active and expanded benevolence. Before the repeal of the medical law he was president of the 16th District Society, and one of the delegates to the General Medical Society. With these claims on our consideration, I venture to offer his case for publication.

Dr. Judkins, æt. 39 years, originally with a good constitution, and always remarkably temperate in his habits, had been engaged for the last 15 years in a laborious town and country practice, subjecting him to exposure and fatigue both of body and mind, but had generally enjoyed good health up

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food, are altogether contraband. Nay, these scrupulous gentry will have nothing to do with the fish of the sea, which they for the most part regard as company for snakes, and not fit for the food of a gentleman. So that, although these people live almost wholly on or near the coast, the entire line of which abounds with the CHOICEST FISH, they are ignorant of the art of casting a net. * * * * * * * The frontier population of the European colony at the Cape is the very *beau ideal* of bastard barbarism. The Caffres and the Dutch boors have always been tugging at each other's throats. * * * * Unfortunately, the ENGLISH, although only thirty years in possession of the colony, have during that short period outstripped, in their horrible oppression of the natives, even the cold blooded cruelties of the Dutch boors of the last century. No British traveller has denied this, so far as we know, and most of them confirm it in explicit terms. Among these may be named Thompson, Barrow, Pringle, and quite lately, Dr. Philip and the Rev. Mr. Kay.—*N. A. Review for Oct.* 1834.

to the time of the fatal attack, with the exception of habitual constipation of bowels and occasional attacks of colic; which were commonly slight and passed off, either by the unassisted efforts of nature, or by catharsis artificially induced. When subjected, in an unusual degree, to loss of sleep and anxiety of mind, he was sometimes liable to a febrile paroxysm, in which the brain was very apt to be disturbed in its functions, causing delirium; but a single general bleeding, catharsis, a foot bath, and perfect rest, invariably restored him to his wonted health, which might not be again interrupted for a period of from three to twelve months. His devotion to his profession, and his unceasing concern for his patients, caused him always to forget himself in his attention to others. Of late, his skin, naturally of a clear and sanguineous blush, had become slightly tinged with sallowness, and through the past year he had occasionally expressed an apprehension, "that all was not right in his liver," but no remedies were employed for its relief. In August last he experienced a sudden attack, attended with excruciating pains in the abdomen, with cold skin, small pulse and a paroxysm of complete syncope, soon followed by copious alvine and biliary discharges; after which, about half pint of a bright red secretion, resembling arterial blood, but not coagulable, was discharged by the rectum, in small quantities at a time, unmixed with any other matters. No febrile reaction ensued, and he attended to his business as usual on the following day; and from that time, uninterruptedly, up to the 4th of December. On that day, after eating a hearty supper, consisting, in part, of hot biscuit and fresh pork, he was attacked, at 9 o'clock, P. M., with severe pains in the umbilical region; attended with vomiting, great anxiety, jactitation, cold extremities, small pulse and costive bowels. His feet and legs were immersed in hot water, he was bled from the arm 24 ounces, had hot fomentations to the abdomen, took 10 grs. of calomel and 2 of opium, followed by ol. terebinth ʒi, ol. ricini ʒi combined; then ether, and enemata of a saturated solution of common salt, in an infusion of senna. The pains continued unabated until 1 o'clock, A. M., of the 5th, when

he became somewhat composed and dozed until morning. At 9 A. M. the stomach was quiet, the bowels imperfectly moved, the abdominal pains, with tenderness on pressure continued, but less severe; the pulse 90, regular, compressible, and tongue dry in the centre, with thirst. A vein was again opened in the arm—the blood running freely at first, but soon failing, so that only about a pint was obtained. Calomel in 10 gr. doses every four hours, with other purgatives, enemata, and fomentations, were prescribed, to be used through the day until free purgation should be effected. At 9 P. M. no action upon the bowels, continued abdominal pain and soreness, lies with his legs flexed so as to relax the abdominal muscles, pulse 90. soft and regular, skin dry, not hot, tongue dry and clean. He was again bled from the arm, and about a pint of blood obtained, flowing, as before, in a manner which indicated visceral congestion and imperfect capillary circulation, the blood, after coagulation, exhibiting no buffy coat. Bitter extracts, castor oil and enemata were directed, and a large blister over the abdomen proposed, but hops boiled in vinegar substituted, with cold gum water acidulated as drink.

Dec. 6th, 8 A. M. Bowels freely moved three times in the night, stools dark and scybalous, after which enjoyed some rest, but has abdominal pain attended with remissions; pulse 80, soft and regular, skin cool, tongue dry. A bath was prepared of the temperature of 110°, into which, at 10 o'clock, he was immersed and remained 40 minutes, during which he was quite free from pain. When removed from the bath, his pulse being full, soft, and 90 in frequency; a vein was opened in the arm, and near a quart of blood taken *pleno rivo*. His skin perspired freely for about an hour afterwards. At 1 o'clock P. M., had a severe chill, which shook his whole body, and lasted 30 minutes; it was followed by general restlessness for a short time, but no increased frequency of pulse, and went off in a copious perspiration. At 9 P. M. there was tenderness of the abdomen on pressure, but no paroxysmal pains; tongue dry and brown in the centre; pulse 80. Cups were applied over the abdomen, which, however, did not bleed freely, and gentle

laxatives, gum water and fomentations continued through the night.

Dec. 7th, 8 A. M. An enema at 12 at night had procured alvine evacuations, dark but not copious; felt some pain in the abdomen, and was desirous of a warm bath, which was allowed; after which he had (by his own direction) a large camphorated Burgundy pitch plaster, spread on thick leather, applied over the entire abdomen; took castor oil, and used acidulated gum water as a drink through the day, and in the afternoon, on account of chilliness, cal. and dov. powder, with infusion of serpentaria. At 9 P. M. his skin was universally moist, pulse 80, soft and regular; tongue more moist, but still rather dry in the centre; abdomen *perfectly free from pain on pressure*—which continued to be the case, from this period through the whole course of the disease. From this time, the chills formed a prominent feature in the general aspect of the case; they were ushered in suddenly, without premonition; sometimes seeming to be excited by the slightest exposure of the body to the air; sometimes by cold acid drinks taken into the stomach, but much oftener, without any, even suspected, cause whatever; varying in frequency, from once, in from 4 to once in 8 hours; in degree, from a mere sense of coolness, to a severe ague; and generally followed by great restlessness, some increase in the tension, none in the fulness or frequency of the pulse, followed in from five to twenty minutes, by excessive perspiration of the head and body, not of the extremities. With the chills, other symptoms appeared, such as severe and continued pains in the loins, excessive thirst, irritability of the stomach, which rejected drinks (gum water containing either acid or alkali) as if by a spasmodic action of the viscus itself; the fluids being unmixed with either alvine or hepatic excretions. The skin and adnata now exhibited a deep yellow tinge; the urine very high coloured and muddy or turbid after standing; the mind greatly depressed, foreboding a fatal issue to the case. The symptoms were supposed to indicate either mechanical obstruction of the hepatic ducts, or chronic disease of the liver, and the former view was adopted, perhaps with as much dependence upon

the phenomena and termination of the attack, herein referred to, as occurring in August last, as upon the symptoms now present. The occurrence of the first chill, just 40 hours after the attack, was regarded as indicating irritation, rather than the formation of matter. The views of Marshall Hall,* on abdominal irritation, were regarded as throwing some light upon this question. Accordingly, the symptoms were treated with infusion of bone-set, (*Eupat. perfol.*) given twice as an emetic, at the approach of the chill, the warm bath, general bleeding, mercurial and oleaginous purgatives and *a large blister over the liver and stomach*, all which, varied to suit circumstances as they arose, were perseveringly employed for three days, viz. until the 11th, without the least advantage. The jaundice was now strongly marked; the tongue dry; stomach free from irritability; pulse 75, soft and regular; skin dry but cool; the alvine evacuations dark and floculent; the chills occurring as before, but followed by greater restlessness and much less moisture of the skin, and occasionally subsultus tendinum. It was now determined to withhold every thing from the stomach, which might be supposed capable, in the least degree, of irritating the gastro-intestinal surface, and to allow only cold gum water with a small portion of sup. carb. potas. as drink, and small portions of ice and injections of cold water to allay thirst, to establish extensive counter-irritation upon the skin, to attempt to control the chills by anodyne enemata, (water of assafœtida and laudanum,) to administer stimulating injections into the rectum, with the double view of producing counter-irritation and alvine evacuations. These general measures, adapting them to the varied circumstances of the case, were rigidly pursued up to the 25th, including a period of 14 days. Meanwhile there appeared to be some grounds for hoping, that they would prove successful—the alvine evacuations, procured by enemata, presented a natural appearance, being moulded and of a dark color. On two occasions, large flakes of false membrane were discharged with healthy excrement—indica-

* Vide Hall on "Intest. Irritation." p. 123 et seg. of his Treatise on "Loss of Blood."

ting effusion from the surface of the small intestines. The skin and eye lost their sallowness almost wholly; the serous discharge from the blistered surfaces was pellucid, and no longer stained linen; the chills, at all times more manageable, were entirely absent for a period of four days; the pulse seldom exceeded 70, never 80, in a minute, was always easily compressed and perfectly regular in its beats; the skin usually soft, but the tongue, although sometimes moist for a few hours, was generally dry, clean and red; and the urine high coloured and turbid after standing. Such was his general condition on the 25th. In the night following, without any apparent cause, he had a severe chill—and on the following morning his skin was *deeply jaundiced*. On the 26th, the chills recurred as in the early period of the disease; subsultus tendinum was frequently observed in the wrists; a careful examination of the abdomen detected obscure indications of the presence of the fluid in the peritoneal cavity. It was now determined to effect a ptyalism, and accordingly 2 grs. calomel, with ½ gr. squill was given every three hours, and the blisters, generally, were dressed with mercurial ointment, and frictions with it, used to the arms and legs, the bowels being still preserved regular by enemata, and the chills counteracted, or moderated, by anodynes, used in the same way. These means proved wholly ineffectual: the constitution of the patient seemed to be wearing down under continued irritation; he had occasional singultus, producing severe pain, flushes of redness in one or both cheeks, hectic pulse, and profuse sweats after a chill. Ablutions of dilated nitro-muriatic acid, and dressing part of the blisters with sulph. quinine were added to the other means, when the profuse sweats entirely ceased.

On the 5th of January, an attempt was made to increase the quantity of calomel to 5 grs. every three hours—but the stomach rejected it soon; a green fluid, in large quantity, was thrown off from the same organ; two or three copious, liquid, black stools were discharged by the rectum. The singultus was more frequent. On the morning of the 6th, the breath was very offensive, sordes accumulated upon the teeth, flakes

of viscid mucous were discharged from the mouth. the tongue perfectly crisped. On the 7th the mental faculties were disturbed; he exhibited loss of sensibility, by expressing a conviction of his ability to rise and set up, and also a desire for food with great hunger. From this time he sunk rapidly, and quietly breathed his last at 4 A. M. of the 8th.

Permission being granted, the body was inspected, and presented the following morbid appearances.

1. General emaciation, with prominence of abdomen.

2. Sallowness of the skin, the face, particularly, having a deep saffron tinge. The adipose and serous tissues, exposed by opening the cavity of the abdomen, were similarly discolored.

3. The peritoneal cavity contained a quantity of serum, slightly approaching the character of a sero-purulent fluid, with a portion of black coloring matter in it, estimated at three pints.

4. The greater omentum adhered by a strong connexion, two inches long, to the posterior or free surface of the peritoneum, lining the abdominal parieties, above the symphisis pubis.

5. The contiguous surfaces of the small intestines were agglutinated, in many places, but the false adhesions about the duodenum were particularly firm and extensive.

6. The duodenum, externally, was of a dirty white, or ash color, its coats easily perforated with the finger, containing a dark fluid like coffee grounds, in small quantity; and its mucous coat perfectly soft and easily rubbed off. The light was insufficient to note accurately minute objects.

7. The jejunum and ileum, externally, exhibited a bright red blush, as of parts fully injected with red blood. They contained a dark, jelly-like fluid, in small quantity, similar to what had been evacuated the two last days. The mucous coat was red in patches, but firm, as was the muscular also.

8. The colon was not connected by any false adhesions; its coats were of a healthy appearance, and contained flatus and healthy mucus only. Upon the posterior surface of its

arch, there was an oval shaped deposit of lymph, of a black color, exterior to the peritoneal coat, about two inches long, a line thick, and its margins perfectly smooth and defined; with a few dark flakes, resembling coagulated blood, hanging from its free surface. The effusion was very firm, and the intestine otherwise healthy.

9. The stomach was bound down, by means of the greater omentum, to the intestines—was moderately distended with fatus, and its inner surface smeared over with a tough, viscid, light green coat of mucus, precisely similar to what was vomited. The mucous coat was of an ash color, was quite soft and easily scraped off with the finger nail, but was free from any patches or points of inflammation.

10. The head of the pancreas was firmly and closely united to the posterior surface of the duodenum—it was enlarged and very hard— *t seemed to compress the ductus communis choledichus*, which, in fact, was not traced beyond this point, but I am not satisfied that it was impervious.

11. The gall bladder was moderately distended, and adhered very firmly to the duodenum. It contained a straw colored fluid, with a black pigment diffused throughout, but entirely distinct from it—the inner coat was highly vascular, the vessels being injected with red blood.

12. The convex surface of the liver had a few thread like adhesions to the corresponding surface of the diaphragm. The viscus was not enlarged, was of a dirty ash color, and upon the convex surface of the right lobe, there were a number of irregular, granulated eminences, an inch in diameter projecting about one line from the smooth or even surface. Three or four of these were clustered together, in the point formed by the inferior edge of the lobe, and the great fissure, and the slightest touch of the scalpel opened their cavities, which were filled with a thick, ropy, curd-like fluid, of a yellow tinge, each cavity containing about a tea spoonful—but the cavities of those clustered at the margin, communicated with each other, and formed a collection of about ʒj. The left lobe was healthy in its appearance, the peritoneal coat

of the concave surface, and its reflection, forming the lesser omentum, in an inflamed state, forming false adhesions with the adjacent parts.

13. The spleen and kidneys perfectly healthy, and free from false adhesions.

14. The bladder empty; the cavity of the pelvis filled with serous effusion.

Remarks.—The inferences deducible from these facts would seem to be:—

1. That *chronic enlargement of the head of the pancreas* had existed prior to the present attack—occasioning obstruction to the passage of bile through the common duct, into the duodenum—which accounts for the habitual constipation of the bowels, and sallowness of the skin.

2. That the remora of fluids thus produced in the liver, had gradually developed tubercular disorganization of this important viscus—a disease which Dr. Abercrombie, in his invaluable work "On the stomach," says, "produces marked symptoms, only when the tubercles are numerous, or accompanied by enlargement of the liver, or disease of its general structure; but that when the structure is otherwise healthy, *they may exist without any symptom calculated to produce a suspicion of their presence*," and it is quite probable that such was the character of the disease of the liver which existed in this case.

3. That extensive inflammation of the stomach, small intestines (duodenum particularly) and peritoneum, was the cause of death; but that, in all probability, the "*fons et origo mali*," was the enlarged head of the pancreas, exciting inflammation of the gall ducts and duodenum—and extending thence by continuous sympathy, to the other organs involved. Fœcal accumulations and irritating ingesta, may have served as the exciting cause of the present attack.

4. That the *tongue* was the safest and truest index of the nature of the disease—and that the pulse was, what Hippocrates describes it, "*res fallacissima*," in the present instance, confirming the important remark, "that the pulse is a very

uncertain index of the condition of the parts in enteritis and peritonitis, being often slightly affected through their whole progress to fatal disorganization.

5. That, upon the foregoing premises, the disease was, at the time of the attack, incurable by any means known to the profession; for what could act upon the head of the pancreas?

In the progress of the disease, the question was often discussed in consultation, and it may not be improperly here repeated, "Whence proceeded, and to what shall we attribute the chills?" unquestionably the most distressing circumstance to the patient attending the disease. Two explanations were given—1. That they depended upon, and were indicative of, the formation of abscesses in the liver. 2. That they proceeded from irritation of the abdominal viscera, and that upon the principle "ubi irritatio, ibi affluxus," blood was withdrawn from the surface and concentrated upon the viscera, producing chills in the same manner as a cold bath, or intermittent fever.

Those who adopted the former view, will probably regard the matter found in the liver, as confirmatory of its correctness. Those who entertained the latter would probably oppose something like the following objections. 1. The softening of tubera is a very distinct disease from the formation of abscess in the liver—and that it is more consistent with facts to say, that chills do not, than that they do, attend the former disease. 2. That the first chill, occurring 40 hours after the attack, was too early in the disease for the formation of matter. 3. That the matter found, was the result of chronic action, and was in existence *at the time of the attack*. 4. That the extent of the congestive and inflammatory action, was quite sufficient to produce such chills—which, when dependent upon this cause, might occur frequently, from the first onset, to the final termination of the disease.

P. S. Drs. Dickson and Scott, with myself, were his attending physicians. And Drs. J. C. Campbell of Wellsburg, M'Bean of Cadiz, Bates of Smithfield, and Hamilton of Mount Pleasant, gave us the benefit of their advice in consultation.

Steubenville, O., Jan. 17, 1835.

IV.—Acetate of Lead in Cholera.

Note on the efficacy of the Acetate of Lead, in several cases of Epidemic Cholera, in Cincinnati, October, 1834.—By the Editor.

In various numbers of this Journal, we have given some account of the different invasions of the Cholera, which this city has experienced since the 30th day of September, 1832. In an article, the first of our 30th number, we stated, that on the 18th of September, the city was healthy, though a death now and then occurred from the lingering influence of the epidemic poison. For the ensuing three weeks, this influence was felt less and less every day, so that by the 7th of October, it appeared to have near or quite vanished. On the 9th and 10th there was rain, followed on the night of the latter, by a great depression of the temperature, and *immediately the epidemic was revived*, with a malignity equal to any it had previously displayed. It was not, however, general throughout the city; at least in the same degree, and many parts scarcely felt its influence. What appeared the most remarkable, was, that Fourth Street, running, (as we may inform the distant reader,) from East to West, on the upper of the two plains on which the city is built, at an average distance of four squares, or more than a third of a mile, from the river, was far more affected than any other. Of all the streets of the city, this is well known to be one of the cleanest, and the most entirely devoted to private dwellings; which are, with few exceptions, not crowded, and generally of an elegant and commodious character. Along this street, or within half a a square of it, there occurred, on the 11th, 12th and 13th of the month, no less than nine deaths; although its population is far from being dense. Had an equal, proportionate mortality, prevailed over the whole city, it would have lost, in those three days, at least 250, instead of 25, which was about the actual number. The duration of this outbreak was short, and before the end of the month, it was rare to meet with a single case. Those who fell victims were, generally, persons in comfortable or affluent circumstances, of both sexes, and at all periods of life, from childhood to old age.

Now, what shall we say of these facts? That Epidemic Cholera depends on changes in the sensible qualities of the atmosphere? Certainly not—for such a change as that which occurred on the 10th of October, has taken place a countless number of times, without producing Cholera. It was, in truth, but a powerfully exciting cause, increasing the susceptibility of the system, and impairing the functions of the skin, before the remote or specific cause, had left our atmosphere, or while the systems of some, were still, in the inappreciable condition, which extends from the impress of the specific poison, to the manifest developement of morbid actions. Had the great change of weather been postponed, perhaps a fortnight, its power of reproducing the epidemic might not have been perceptible. It is by neglecting these obvious views, that many physicians, have been led into the untenable conclusion, that Epidemic Cholera arises, *ab initio*, from atmospheric vicissitudes.

We may mention two facts which seem to indicate, that mere depression of temperature, is not the sole exciting cause, in cases of this kind; but that in changes of weather, there are other conditions of the atmosphere, than those of which our senses take cognizance, on which the pernicious effects, in part, at least, depend. Two of the victims to which we have referred, were females confined to the house. One a lady, in middle life, who had been ill of bilious fever, and was not yet able to go abroad; the other, an elderly woman, whose age and infirmities detained her in the chamber; neither of whom, could be fairly, considered as under the influence of external changes of temperature.

We may also state, that the cause which awakened the Epidemic, although extensive in its geographical range, was powerless elsewhere than in Cincinnati, apparently, because the specific influence was not in being. Two cases occurred, which would seem to be exceptions to this remark; but they were not. Professor McGuffy, of Oxford, where the disease had recently prevailed, and Thomas S. Grimke, of South Carolina, who had spent nearly three weeks in Ohio, and the last two in Cincinnati, left our city in good health, on the

10th,—the day on which the change of weather took place. The former sailed to Louisville and the latter travelled towards Columbus. They were both attacked, the latter in the course of the night,—and the former in two days; the people in the regions—300 miles apart—into which they went, being at the time free from the Epidemic. As a few persons still cherish the opinion, that Cholera, is contagious, we may add, that although Mr. Grimke's attack proved fatal, the disease did not spread among those who surrounded him.

But the chief object of this little paper is, to state the results of some experience with the Acetate of Lead, in several cases of our October invasion.

A short time before it occurred, being told by a medical friend, that a physician of Canada had lately used that medicine in large doses, with advantage, in the treatment of Cholera, we determined, when opportunity should offer, to give it a trial.

The first case in which we used it was that of Professor McGuffy, mentioned above. He returned from Louisville on the 15th, labouring under a *serous* diarrhœa, which had commenced on the 11th or 12th. His strength was much reduced. He was put to bed, and took calomel and opium with the cretaceous mixture. For several hours, through the middle of the day, the disease seemed suspended, but towards evening it returned, with profuse water gruel discharges, accompanied with nausea and a rapid sinking of the pulse. As vomiting and spasms were impending, we resolved on the immediate administration of the Acetate, in liberal doses; and accordingly gave a pill of ten grains, with one of opium, every hour, till he took half a drachm. The diarrhœa ceased after the second dose; but he continued with a strong disposition to vomit, notwithstanding the application of a sinapism to the epigastrium. Soon after the third dose, he said his stomach felt like the skin where the mustard had been applied, and his pulse became excited. He was then made to take a draught of salt and water, to decompose the Acetate, and was soon relieved from the gastric irritation. The night was one of considerable febrile excitement. The suspended alvine

evacuations, were restored the next day, with healthy secretions from the liver, and he was soon well enough to return to Oxford.

On the same day in which Prof. McGuffy was ill, a little boy, 10 years old, was still worse with the same malady. He was taken in the night, and we did not see him till the following afternoon. He had vomiting, and a profuse diarrhœa; the discharges resembling milk and water. His pulse had failed very much. A single powder of ten grains of the Acetate of Lead and one of opium suspended every symptom, and the next morning he was able to sit up. Without the use of calomel, his discharges assumed a bilious character.

About the same period, six or eight persons, male and female, affected with the copious watery diarrhœa, which manifests the epidemic influence, took the same compound. In every instance, it arrested the disorder, and without the use of calomel, there followed bilious evacuations.

At a period somewhat subsequent, a blind pauper arrived in the city, from the Upper Mississippi, and applied to us to be operated on for cataract. Although no Cholera existed here at that time, he was soon taken down. Being upwards of 80 years of age, (though a robust old man,) his case was every way threatening; especially as vomiting and spasms, attended with profuse rice water discharges, were present, and had existed for some time, when we were called to prescribe.—An exclusive reliance was placed on the Acetate of Lead and opium, given in repeated doses of five grains of one and half a grain of the other, and under this treatment he recovered—the functions of the liver being restored without the use of mercurials.

In one case of collapse, a patient of Dr. Shotwell's, we saw the same medicine administered without effect.

In no instance, did any sinister effects result from the doses that have been mentioned; and on no person, but Prof. McGuffy, who took 30 grains in two hours, did they produce any sensible effect of an unpleasant kind. Should the dose, in any instance prove too strong, it may be promptly decom-

posed and rendered inert, by the alkaline muriates or sulphates.

We deem it unnecessary to extend this loose and desultory report, the sole object of which is to call the attention of our brethren, who, in the common course of things, have yet to grapple with this pestilence, to this medicine, which we earnestly hope they will submit to the test of experience. Original and constant prescribers of Calomel, for two years, we have often witnessed its anticholeric power; but have often seen it fail. The total cessation of the functions of the liver has seemed to require it, and theoretical views not less than experience have contributed to its extensive administration. We are entirely satisfied, however, that the secretion of bile will return, if that of serum be arrested; and, of the power of the Acetate to effect this, we think some evidence has been offered. The preparation of lead, moreover, acts much more promptly, than that of mercury; and its power of exciting in the stomach the kind of inflammatory irritation, which Mr. McGuffy experienced, appears to us, to be one of its highest recommendations; for we have yet to learn *from observation*, that Cholera is a gastro-enteritis. So far, indeed, from consisting in inflammation, we are disposed to think, that in general, the occurrence of that state, in connexion with a suspension of the secretory action of the mucus membrane, will render the disease quite manageable. It may be said, however, that all kinds of stimulants have been profusely employed, and must often have excited gastritis; this we grant; but were they fitted to restrain the inordinate action of the intestinal mucous membrane? We think not, and their failure may have arisen from that very imperfection. The great question in this matter may be thus stated—Is the failure in the hepatic secretion the cause, or the effect, of the profuse secretion from the bowels? Most of the prescriptions in Cholera have been based on the first alternative, in this interrogatoty; but how often do we see the actions of the liver suspended, without the least increased secretion from the bowels? and how consonant is it with many well ascertained pathological, indeed physiological

phenomena, for a great increase in one secretion, to be followed by a failure or total suspension of some other;—in Cholera, it would seem of several others, for those of the skin, and kidneys, are as much reduced, as that of the liver. If then the increase of the muco-serous secretion from the intestinal ramifications of the portal circle, precedes and occasions the diminished secretion from the hepatic extremities of that system, why should we not pass by the latter and direct our remedies upon the former? Striking at the root, instead of the branches of the tree.

It may be said, that most of the cases, from which have drawn a conclusion favorable to the powers of the Acetate of lead, were not so far advanced as to justify the inference, that it is a remedy for Cholera. But what *can* cure that disease, when vomiting and spasms, with reduced calorification and cutaneous secretion, are fully established? According to the books (which have fallen on the profession in epidemic profusion.)at least a thousand medicines! to which cures, if collected into one great volume, might be applied the zoological maxim, that all *numerous progenies are vicious.* We believe, that each has been occasionally successful, but generally ineffectual. For the hundredth time we here repeat, as the result of our own observation, and that of the profession in Cincinnati, that before the pulse has sunk very low and the muscular system been seized with spasms, the disease is more tractable than hysteria; after these symptoms have become established, more *incurable* than apoplexy.

That its advancement is, *generally*, slow enough to admit of the application of appropriate remedies, if the people would do their duty to themselves and the profession, we know from abundant observation. If they will not, they should not hold their medical friends responsible. The man who dies of small pox, from neglecting vaccination, and he who loses his life from indifference to the curable stages of Cholera, perish from different violations of the same law of self-preservation—deferring the appropriate means, till their application can be of no avail. It was by violating this law, that the distinguished

citizen of South Carolina, whom we have just mentioned, was lost to his family and the country. As many of our readers are familiar with his reputation and fate, we shall close this article with a brief notice of his last illness and death.

THOMAS S. GRIMKE.

Mr. Grimke came from Charleston to this city, for the purpose of delivering, by request, the annual oration of the Erodelphian Society, in Miami University, at Oxford, forty miles from Cincinnati. On returning, he spent two weeks in the city, and departed, apparently in good health, for Columbus, in the northern mail stage, at 2 o'clock, P. M. of the 10th of October. The night became cold, and as every hour carried him further north and upon a higher level, the depression of temperature must have been extremely pernicious to his southern constitution. At Waynesville, 42 miles from the city, the fatal cholerine had begun, and there he should have left the stage, and resorted to medical advice. But he kept on, passing through Xenia and Springfield. 10 and 30 miles further, without seeking the assistance of the profession. He encountered the high, cold and unsettled summit level between the vallies of the Miami and Scioto; and after a ride of 29 additional miles, without the use of medicines, he arrived at Anderson's tavern, (Gwynne's farm,) 24 miles west of Columbus, in a state of incipient collapse. Still bent on reaching his place of destination, he attempted, after having left one coach to enter another, but was unequal to the effort; and then did, what should have been done at Waynesville, 18 hours before, stop and lie by. The hospitable family applied heat and frictions to the surface of his body, and urged him to take calomel and laudanum; but he declined, observing that he would not take medicine without the advice of a physician. When Dr. Thompson, of Columbus arrived, he was pulseless, and expired in a few hours. Now if Mr. Grimke had received a wound at Waynesville, which led to hæmorrhage, he would have had the vessel taken up—if not, he must have bled to death; but not more certainly, than if he suffered the cholerine, which constitutes the first stage of the Epidemic, to continue unchecked—by rest, a recumbent posture and the appropriate remedies. His remains were committed to *permanent* sepulture in Columbus.

Thus perished, from mere inattention to the means of self-preservation, in the meridian of life, a most learned, benevolent, pious and useful man—whose heart embraced the Union and all its most cherished interests—and whose name and amiable fame are the property of the nation.

December, 1834.

ANALECTIC, ANALYTICAL, AND ORIGINAL.

I. Analectic.

Ad Sylvas Nuncius.

1. *Seat and Nature of Gonorrhœal Orchitis.*—The *Journal Hebdomadaire*, for the 17th of May last, contains an interesting memoir on this subject by Dr. Marc-Moreau. The author maintains, we believe with justice, that hernia humoralis consists of an acute inflammation of the vasa deferentia, of the epididymis and tunica vaginalis, and that this inflammation rarely extends to the substance of the testicle The truth of this view he considers demonstrated—1st. By anatomy, which teaches us that the testicle enveloped by a dense, elastic, and fibrous membrane, could not acquire three, four, five, six, and ten times its normal size, without being disorganized. 2d. By clinical experience, which has shown the existence of fluctuation, especially at the commencement and termination of the disease. 3d. Finally, by post mortem examinations, in which the testicle, which was supposed to be diseased, has been found healthy; whilst the epididymis and tunica vaginalis have constantly presented pathological alterations, and that in the cavity of the serous membrane a fluid of variable colour, consistence and qualities have always been found.

2. *Properties and Effects of the Digitalis Purpurea.*—The Nos. of the *Archives Générales* for January and February last, contain an interesting memoir by M. Jonet, on the digitalis purpurea. From all the facts which this writer has collected, he infers—

1st. That the powder and watery extract of digitalis, (he prefers the latter,) may be administered in doses as high as sixteen or eighteen grains, commencing with one grain, and daily increasing the dose, without in most cases producing marked disturbance of the digestive functions. That the alcoholic extract cannot be depended upon, and that the etherial extract is the most uncertain preparation. The infusion he considers as the most active preparation, and the dry plant to be preferable to the fresh leaves.

2d. That in a great majority of cases, digitalis employed in powder,

aqueous extract, and especially in infusion, exerts an irritating action upon the digestive organs, always evinced by colic, diarrhœa, nausea, and vomiting. That the property of the digitalis in rendering the pulse slower is indisputable, and that the gastro-intestinal irritation does not prevent this result. That the respiration may be affected by the remedy, dyspnœa most frequently disappearing as the pulse diminishes in frequency. That a distinct disorder of the nervous system is rarely observed after the administration of digitalis. That the digitalis really possesses hydrogogue properties; and that the decoction of this plant in the dose of from two to four ounces, applied to the abdomen, is a powerful diuretic, very preferable to the internal administration of other diuretics, because it may be employed in all cases of gastro-intestinal irritation.

3d. That palpitations of the heart, which are most frequently the prelude to a severer affection, ordinarily yield to the use of digitalis. That anasarca and ascites may be relieved by the judicious use of this plant, and that the success attributed to it in mania, hæmoptysis, advanced phthisis, scrofula, and many other diseases is certain.—*Archives Gén. March*, 1834.—*Amc. Journ. of the Med. Sciences.*

3. *Treatment of Ileitis.* By Wm. Stokes, M. D.—Laxatives are to be employed in enteritis, on the same principle that emetics are used in cases where corrosive poison has been taken into the stomach. We are not to expect to be able to cure the disease by the use of laxatives, nor are we to have recourse to them in every case; we employ these remedies where we have decided evidence of the existence of offending matter in the bowels. We may meet with a case in the early stage under such circumstances, that the removal of the irritating matter by judicious purgation may completely relieve the patient, and this, I believe, is the foundation on which the superstructure of the British purgative practice in ileitis and tabes mesenterica was raised. It was concluded, that a laxative treatment, which had on many occasions succeeded in removing the first symptoms of the disease, would necessarily cure it in all stages and cases. This, I need not tell you, is wrong. Whenever you give purgatives or laxatives in enteritis, bear this in mind, that the effect which you have to produce is to be brought about at the least possible risk. If you can unload the bowels with a little castor oil or rhubarb, or some mild neutral salt, it is much better than to have recourse to calomel, or scammony, or colocynth. As a general rule, drastic purgatives must be avoided in inflammation of the mucous membrane of the intestines. The school of Broussais committed an error, on the one hand, by never admitting the use of laxatives, and British practitioners have been wrong, on the other hand, by giving too much purgative medicine. The error of the latter arose from looking always upon purgatives as antiphlogistics, which they are certainly, so far as they contribute to relieve inflammation by causing an increased secretion from the intestinal mucous surface. But this increase of secretion can be produced only by stimulating the organ to which they are applied; and hence, before they can become

general antiphlogistics, they must, of necessity, be local stimulants. Further; if in a case of inflammation of the digestive tube you prescribe a purgative, and it fails in causing an increase of secretion, it will add considerably to the existing inflammation. It is, however, of very great importance that there should be no accumulation of offending matter in the bowels; and hence, when you find a degree of fulness in the belly, and the dejections scanty, you should always give a laxative, and follow it up by the administration of a narcotic. By using enemata, you can do a great deal of good, and this without any injury to the digestive tube; and I think they may be always employed with benefit in disease affecting the ileum. Recollect, gentlemen, what I wish to impress upon you respecting this part of the treatment is, that laxatives are to be employed in ileitis as one of the means of cure; but you are not to expect that a cure by the use of these alone will always be a matter of constant occurrence. It is true, that many cases presenting symptoms of enteritis, have, in the beginning, yielded to laxatives; but it is true also, that horrible mischief has been done by their continued or indiscriminate employment.

A few observations now with respect to bleeding. There is in simple inflammation of the mucous membrane of the intestines this peculiarity—it very seldom happens that it is necessary to use the lancet. The whole class of intestinal inflammations is so generally accompanied, even in the early period, with marked prostration and a typhoid condition of the whole system, that general bleeding is very seldom employed. But when the disease is recent, the constitution vigorous, the patient young, the skin intensely hot, and the pain violent, (a combination of circumstances which is not of very common occurrence,) you may employ the lancet with safety and with great advantage to your patient. But what I wish to impress upon you is this—you must not expect to cut short an attack of enteric inflammation by general bleeding. Over inflammation of mucous membranes in general, but particularly of the intestinal mucous surface, the lancet has comparatively but little direct power; it is in the inflammatory affections of parenchymatous tissues and serous membranes, that we generally observe the most brilliant and decided effects of venesection. Neither can you, as in parenchymatous inflammation, bleed a second and a third time with benefit. In cases of inflammation affecting the mucous membrane of the intestinal canal, your are to look upon venesection as a preparatory step to leeching. Where the pain is violent, the fever high, the attack recent, and the constitution strong, you will do well to bleed; but only bleed once, and then apply leeches in abundance over the suffering organ. There is nothing of more importance, nothing of such decided value, as bleeding by leeches in inflammation of the mucous membrane of the intestinal canal, and here we arrive at a fact, the explanation of which is involved in much obscurity. A patient is attacked with inflammation of the mucous membrane, and glands of the digestive tube, twelve or twenty leeches are applied to the integuments of the abdomen, and their application is followed by extraordinary relief. This is a very curious fact when we consider

that between the place where we apply the leeches, and the tissue which is affected, there intervene skin, cellular membrane, superficial fascia, cellular membrane again, deep-seated fascia, muscular substance, cellular membrane again, two layers of peritoneum, and muscular substance enveloped in cellular tissue. Yet, notwithstanding this extraordinary succession of tissues, it is an undeniable fact, that the application of a dozen leeches to the surface of the belly will frequently cut short an intestinal inflammation, or materially diminish its intensity. Here is a fact, the explanation of which is extremely difficult; and I tell you candidly, I cannot explain it. The school of Broussais attempt to explain it as follows. They state that it is a constant law of the economy, that there is a strong sympathy between the internal parts and their respective integuments, but they do not say why this sympathy should exist. We frequently, however, observe facts confirmatory of this law; you are aware that it often happens that, in cases of the deep-seated muscular phlegmon mentioned by Mr. Crampton, in abscess of the liver, and in empyema, we have a swelling of the integuments, showing the existence of a sympathy between the integuments and the internal organs.

In treating a case of inflammation of the small intestine, I think you may generally commence with the application of twelve or eighteen leeches over the ileo-cœcal region. The ordinary result of this application is, that the pain and tympanitis are reduced, and the thirst diminished; but the patient still has fever, and you are to bear in mind that the mere subsidence of pain does not imply the removal of the disease. We may modify the character of an ileitis very considerably by a single application of leeches, but we are not on that account to expect that we shall be able to remove the disease entirely. In general it is necessary to apply them two or three times, lessening the number at each succeeding application, and taking care that they are applied in the proper place, that is, midway between the umbilicus and the crest of the ileum. Many practitioners are afraid of employing leeches in the advanced stage of this affection, in consequence of the great debility, which characterizes the advanced stage of this, as well as inflammation of every other part of the digestive tube. But though I am quite of opinion that the school of Broussais is wrong in using them at any period, still I think they may be employed even where the disease is advanced, *particularly if they have not been used before*, and I have frequently seen leeches applied with advantage as late as the twelfth day. I have employed them myself in the Meath Hospital, as late as the ninth and tenth days, with decided benefit. Many physicians on the continent are in the habit of treating inflammation of the digestive system by the application of leeches to the anus, and this is said to have a very good effect, and the number of leeches required is smaller. In disease of the great intestine accompanied by diarrhœa, tenesmus, and tormina, I think this is an excellent mode, but when the disease is in the upper part of the tube, I prefer applying them to the belly over the situation of the inflamed organ.

Now with respect to internal medicines. In this disease every

thing that is administered should be given with the view of removing irritation, and for this purpose I know no better preparation than a combination of ipecacuanha and opium, as in Dover's powder. The exhibition of the compound powder of ipecacuanha is attended with decided advantage. You are all aware of the long established use of ipecacuanha and opium in diseases of the intestinal canal, and I think there can be no doubt that they possess considerable utility. With this I generally combine some mild mercurial; the best you can employ is the hydrarg. cum cretâ. Give two or three grains of each every second or third hour, as the case may be, and you may continue this for several days. Where there is no diarrhœa, and the bowels have a tendency to be constipated, it will be necessary to order, every second or third day, a mild laxative, a little manna, or rhubarb, or some castor oil; you should insist on the daily use of enemata, and if they answer the purpose sufficiently I would advise you to be sparing of the use of laxatives by the mouth. In addition to these remedies, I am in the habit of giving a considerable quantity of gum Arabic, which appears to have an extraordinary efficacy in disease of the small intestine. I look upon it as peculiarly valuable in the diseases of children. The ordinary mode of prescribing it is to give a certain quantity of gum water. If this is sufficient, you should order half an ounce or an ounce of the gum to be dissolved in a pint or quart of water, which the patient is to use during the day. After the use of the hydrarg. c. cretâ and Dover's powder, this has a decided value in the treatment of ileitis.

In this way, by leeching, mild laxatives, prescribing mercury with chalk, and compound powder of ipecacuanha with gum water, your patient begins to improve. The tenderness of the epigastrium disappears, the tongue begins to clean, the fever diminishes, the thirst goes off, and appetite returns. This is the favourable termination. When the patient is of a weak and delicate habit, it is of great importance to pay particular attention to supporting the strength, *even from an early period of the disease.* In such a case, after the first week, the physician who neglects the proper means of supporting his patient's strength does wrong, and it has been justly remarked, that a practitioner will be right in supporting the general strength, at the same time he is employing local antiphlogistics. It is in steering clear between these two opposite dangers that the judicious practitioner is seen; he does not allow his patient to die of inanition, while at the same time he takes care to remove local inflammation. I have seen several experienced physicians prescribe leeches to the abdomen on the same day that they ordered the patient to have chicken broth, and even a little wine. There is nothing improper in this; an experienced practitioner, who has his eye merely on the local inflammation, is apt to fall into the error of overlooking the constitutional debility, and allowing it to steal upon him. He finds very little difference between the appearance of his patient this day and the next, and thinks the slight increase of debility undeserving of an attention. At last his patient begins to sink visibly, he gets alarmed and has recourse to stimulants, but it is now too late. Besides, there are several articles of diet which support

strength, without increasing inflammation, as for instance, chicken broth, sago, arrow-root, strained rice, &c. These do no harm, and they prevent the patient from falling into a dangerous typhoid condition. Let us look at this in another point of view. Suppose you are called to a child who is said to have had an attack of worms, or bilious derangement, or that his bowels were costive, and purgatives were given, that the discharges were found to be bad, and more purgatives were administered; or suppose you are called to a child of a weak scrofulous habit; who has been taking large quantities of purgative medicine, for what has been termed *derangement of the bowels*, and you find the little sufferer with pale shrunken face, a black circle round his eyes, cold extremities, rapid faltering pulse; great thirst, and evident symptoms of increased cerebral excitement; the little arms and hands are as cold as death, but the belly burning, tympanitic, and very sensible to pressure; and when you compare the radial artery with the femoral, as it turns over the pubis, you will have some conception of the excited condition of the abdominal vessels; and in addition to this train of morbid phenomena, you find there is suppression of urine.—Are you to attack these symptoms with antiphlogistic means? No; the first thing you are to do, is to prevent any further mischief, by totally inhibiting every kind of purgative medicine. You are next to consider carefully what the best line of treatment to be pursued is, for here you are under circumstances of difficulty, and have a great many prejudices to contend with. What I find generally to be most successful is this. I begin by taking proper steps to support the strength, ordering the patient to take chicken broth, arrow-root, or jelly; the extremities are to be wrapped up in warm flannel; and if the patient is sinking, and has his mouth and teeth crusted with black sordes, a little wine, watching its effects. If it produces sleep, if the pulse comes down under its use, and the fever is not increased, it will do a great deal of good, and you can gradually increase the quantity. Always bear in mind, that there is a certain period in all inflammations, in which stimulants prove to be antiphlogistics, a circumstance which has been overlooked by the school of Broussais. So far with respect to constitutional treatment; but what will you do with local disease?—The application of blisters is of decided use, nay, I have seen a few leeches very effective. Apply a blister to the abdomen, and dress it with mercurial ointment, at the same time you may employ frictions with mercurial ointment: you will also swathe the belly with flannel, so as to keep up a comfortable temperature. In this way you will be able to do a great deal of good. You will also prescribe hydrarg. c. cretâ, with Dover's powder; and if the bowels are confined, emollient injections. By steadily pursuing this plan of treatment, you will often rescue from imminent danger a case which would prove fatal under the purgative plan, and you will add greatly to your own reputation.

There is one form of this disease in which diarrhœa is a prominent symptom, where there is purging from the very commencement. On this form I am anxious that you should have clear ideas. In cases of this kind there is a copious discharge of fluid matter from the bowels.

In the majority of cases, you may lay down this law, that where there is a decided irritation of any secreting organ, increased discharges from the surface of that organ give more or less relief. Suppose two cases of hepatitis; in the one we have no secretion of bile, in the other the secretion is copious; the latter is certainly most favorable. Again, suppose two cases of bronchitis; in one there is a copious expectoration, in the other it is extremely scanty; now every medical man knows that the former is more easily managed. The increased secretion of any organ in the early stage is to be looked upon as a relief to the inflammation. The practical inference to be deduced from this is, that we should be cautious in adopting any means of arresting this discharge, as it is one of the modes which nature employs in relieving the irritation of a suffering organ. Well then, suppose you have a case of enteritis, and that on the first or second day diarrhœa sets in, what does the routine and systematic physician do? He gives chalk mixture and opium with tincture of kino and catechu, and what is the consequence? The belly becomes tympanitic; the pain is increased, and even peritonitis may supervene; this is one result of the increase of inflammation; or the breathing becomes difficult, and the patient gets bronchitis or pneumonia. Diarrhœa occurring in the early period of this disease is not to be interfered with, except when it gets to such a height as to threaten the patient's life; and where it increases his sufferings by the frequency of the discharges. In the first week or fortnight, when there are only three or four discharges, or even five in the twenty-four hours, I believe it is better not to interfere by prescribing direct astringents; *but in the advanced period, when the powers of life are low, or the discharges very copious*, then the physician comes to the assistance of nature with just reason, and in such cases you should always interfere.

The best mode of managing diarrhœa of this kind is to employ small, frequently repeated doses of Dover's powder, with anodyne injections. And here I may mention briefly, to such of you as have not seen them used, the best way of employing them. As these injections are used on a different principle from the common, the latter being intended to empty the great intestine and be discharged, the former to be retained, we are consequently to make the basis of our anodyne injection in such a manner, that it will not prove stimulant from its bulk, or from any irritating substance it may contain. Mucilage of starch, new milk, or linseed decoction may be used as the basis, and the quantity taken for one injection should never exceed three ounces. To this, for an adult, you add from fifteen to thirty drops of tincture of opium, for it is a curious fact connected with this subject, that opium given by the rectum has frequently been observed to exercise a much more powerful effect on the system than when an equal or even smaller quantity has been taken by the mouth. The rule then is, that when you first make trial of the remedy in this manner, feel your way cautiously, and if you find that your patient bears ten or fifteen drops, you can increase the quantity on repeating the enema. An eminent practitioner of this city thinks the narcotic effect of opium by the rec-

tum much better marked than by the mouth, and I believe this to be true in many instances. I believe the administration of opium in this way requires a good deal of caution. I recollect the case of a man who had been for a considerable length of time in the habit of using laudanum in large quantities, and was, in fact, a regular opium eater.—During an attack of illness he got an injection containing sixty drops of laudanum; this produced, in a very short time, symptoms of decided narcotism, from which the patient never recovered; in fact, he died, with every appearance of being poisoned by opium.

There is another fact with respect to this disease, which I would have you bear in mind; that, under certain circumstances, inflammation of the small intestine will produce a remarkable tolerance of opium. This applies not only to the advanced stage of enteritis, but also to many other forms of disease. Some time since I made a series of clinical experiments with the view of ascertaining the power which opium possesses in relieving inflammation, and the result has been, that in many cases where the powers of life are so low that we cannot have recourse to the lancet, or any kind of depletory measures, opium alone furnishes us with a powerful means of subduing inflammatory action.

When we come to treat of peritonitis, I shall have occasion to speak of the good effects of very large doses of opium, particularly in that form of the disease which results from intestinal perforation. My first trials of this remedy were in affections of serous membranes, and to this I was led by some interesting clinical experiments made by Dr. Graves. I next tried it in diseases of mucous membranes, where antiphlogistics were inadmissible, and here, as in the former cases, I had many proofs of its great efficacy. I shall state the particulars of a very remarkable case. A young gentleman, a pupil of mine, and a member of the class at Park street, of an irritable habit, was attacked with intense inflammation of the mucous membrane of the intestines. He had a high degree of fever, and his thirst was so insatiable, that for two days he never ceased calling for drink. His pulse was weak but rapid; his tongue red and pointed; respiration very much hurried; but the stethoscopic signs of disease of the lung were absent. His belly was exceedingly tender on pressure; and he had another remarkable symptom—constant smacking of the lips. The case, as you may perceive, was one of severe gastro-enteritis, and it was treated in the ordinary mode, by leeches, cold water, &c., but the disease showed great obstinacy, and at the end of a month the patient was evidently in a state of imminent danger. At this period a curious revulsion took place; the chest became engaged, and the patient got bronchitis. For this he was blistered, and took the decoct. polygalæ with large doses of carbonate of ammonia, under the use of which he recovered. The bronchitis disappeared, but was almost immediately replaced by symptoms of intense gastro-enteric inflammation, thirst, quick pulse, tympanitis, low delirium, and subsultus tendinum. In the course of two or three days diarrhœa came on, becoming more profuse as it advanced. The first day he had four discharges, the next eight, and thus went

on increasing until there was a constant discharge of thin fluid matter from the anus. The patient was quite run down, and on three different occasions his friends thought him dead. Having made an unsuccessful trial of various stimulants and astringents, I determined to try what might be expected from large doses of opium. The patient was dying, and it was necessary to do something instantly, which would be likely to arrest the diarrhœa. I ordered a grain of opium to be given every hour; on the first day he took twelve grains with apparent benefit, the next day he took six, the same quantity on the third day, and on the fourth the diarrhœa had so much diminished, and the young gentleman was so much better, that I thought it might be safely omitted. From this period my patient recovered rapidly. I would not bring forward this case in proof of the efficacy of opium if there were not many others of a similar kind; and I have no doubt that this was a cure effected by the use of opium in large doses.

In the treatment of this disease by opium, there is one simple rule, by observing which you will be able to avoid all difficulties, and at the same time have a criterion to judge of the value of the opiate treatment. If the remedy produces the ordinary narcotic effects of such large doses on the system, *it will not do much good.* You begin, therefore, cautiously; and if, after the first or second dose, you find that decided narcotism is produced, or at least more than you would think the quantity given could have brought on, give it up; it will be dangerous. But if he bears one, two, or three grains, or if, after having taken six or eight grains in the twenty-four hours, he appears to be improving, you may then persevere in the administration of opium, and it will be attended with decided advantage.—*Lond. Med. and Sur. Jour., Feb. 22d,* 1834.—*Am. Jour. Med. Sciences.*

4. *Treatment of Diarrhœa.* By Wm. Stokes M. D.—Diarrhœa is the frequent passing of stools of a more or less watery consistence, and which may, and generally does occur without fever. This affection may be considered to arise under three different circumstances, but, in point of fact, every form of the disease may be referred to a single cause, as there is no essential difference in the actual nature of the circumstances by which they are produced. A patient, for instance, takes a quantity of indigestible food, this produces irritation in the gastro-intestinal mucous surface, and diarrhœa is the consequence. Another is exposed to cold, or gets wet feet, the mucous membrane of the bowels becomes more or less inflamed, and this terminates in diarrhœa. Again, a patient, laboring under hectic, has profuse perspirations, these go off and are replaced by frequent fluid discharges from the bowels,—here also, the result is called diarrhœa. All these forms are, however, referable to the same cause,—irritation of the mucous lining of the digestive tube.

A man commits an excess at table, eats something that he cannot digest, and gets diarrhœa. If you happen to be called to such a case at an early period, your course is very plain and easy; there is every chance that the affected organ has received (as yet) no material inju-

ry, and it is attempting to relieve itself by increased secretion. The indication here is to get rid of the source of irritation as soon as possible, and this is best done by prescribing a laxative to remove the offending matter, and then following it up with an opiate. The simple rule is to relieve the intestine and prevent the liability to inflamation. A mild laxative, followed by opiates and demulcents, keeping the patient on a low regimen for a few days, & in a warm temperature; this is sufficient for the management of the first term of the diarrhœa. In point of fact, the principal thing, which the practitioner has to do, is to watch the patient, and take care not to permit the inflammatory action to become developed. It is in such cases as these that the expectant medicine is of value. What you are to direct your attention to, is the state of intestinal surface. If a patient gets an attack of pain, if his belly becomes tender on pressure, if he is more or less feverish, you may be sure there has been some mischief done. If, on the contrary, the diarrhœa yields to the exhibition of a mild laxative and light diet; if the pulse soft and the belly not tender you have no reason to fear. But if the purging becomes more distressing, if the pain is severe, the abdominal tenderness evident, the thirst and restlessness continue unabated, it is a sign that the irritation has produced something more than mere increased secretion, and that actual disease of the mucous tissue is setting in. We have now a true inflammatory diarrhœa, which may be looked upon altogether as an enteritis of that kind, in which there is a copious secretion from the surface of the intestine. You observe this leads us at once to the principles of treatment. Here we have fever, pain, frequent morbid stools, thirst, and abdominal tenderness. Well then, what are we to do?—In a case where these symptoms are so severe as to excite alarm, at once begin by applying leeches. Where there is merely evidence of intestinal irritation caused by indigestible food, give a laxative, and follow it up with an opiate; where, in addition to the ordinary symptoms, you have fever, pain and tenderness, never omit the application of leeches. Many a time have I seen cases of this kind, in which chalk mixture and astringents not only failed but even caused additional suffering, speedily and completely relieved by the application of a few leeches. In using leeches, too, we are not, like the practitioners who trust to astringents, playing at the game of double or quits; nor do we stop the purging by exchanging it for something else equally bad, or even worse, for a peritonitis or a bronchitis for instance; *by removing its cause we not only check the diarrhœa; but we obviate any tendency to a metastasis of inflammation to other tissues, and our mode of cure has at once the merit of being successful and safe.*

A patient who has had an attack of the diarrhœa should have his belly swathed with flannel;—this should never be neglected. He will also experience a great deal of benefit from the use of the hip bath and occasional opiates. Give also a combination of rhubarb and Dover's powder, and you will find that it will do him a great deal of good.—This is the remedy which Rhæderer & Wægler found to be of extraordinary advantage, in the mucous fever with diarrhœa which ravaged

parts of Germany in the last century. Give two or three grains of each every second or third hour; and increase or diminish each of the ingredients according to circumstances, increasing the Dover's powder where the indication is to remove pain and irritation, and increasing the rhubarb where you wish to produce a laxative effect. This combination forms a remedy of decided value in enteric inflammations: it has been much used in such cases by Dr. Cheyne, and I have repeatedly employed it in the Meath Hospital with marked advantage. You are also to bear in mind that though the principle of treatment in this disease is to remove its cause and put a stop to the purging, still you are in no case authorized to give it a sudden check by astringents in the early period. I gave the reasons for this at my last lecture, and showed that it was based upon a general law of economy. If an organ in a state of inflammation pours an increased quantity of secretion, *it is the mode in which nature attempts to give relief, and if you suddenly arrest this secretion, the probability is that you will excite more inflammation in that organ, or cause a metastasis in other parts.* This is particularly the case if inflammatory fever exists. You must also attend to your patient's diet. Your object here is to support him on such a diet as will require but little digestive power, and will not produce large collections of fæcal matter in the bowels. Jellies, arrow-root, chicken broth, and mild farinaceous food are the only things that can be used with safety, until the intestinal irritation has subsided.

By pursuing this plan of treatment with steadiness and decision, you generally succeed in cutting short the disease. In some cases the diarrhœa will run on to the chronic stage, just like the gleet which follows gonorrhœa; and this is to be looked upon as the apyrexial period, in which antiphlogistic remedies are no longer admissible, and when you may employ stimulants & astringents with effect. The best way to manage this form of the disease, is to make your patient use warm clothing, or even temperature, and mild nutritious diet; to prescribe the vegetable and astringent tonics, the hip-bath, and the occasional use of mild laxatives, followed by an opiate. In this way, after some time, the disease generally goes off, and the patient recovers his strength.—But it may happen that this gleety discharge will continue unabated; it is running the patient down, and he wants some decided remedy to check it. Now the remedies which appear to have the greatest power in stopping this discharge, are the metallic astringents, and the turpentines and balsams, combined with some of the preparations of opium. It is a curious and interesting matter to consider how these remedies act. They are a class of medicines which exercise an extraordinary influence over discharges from the mucous surface, in a way we do not understand, but the effect is to arrest these discharges. In a case of ophthalmia, accompanied by copious secretion from the conjunctiva, or in a case of chronic gonorrhœa, we know there is nothing more beneficial than metallic astringents and balsams; and we are also aware of the great value which turpentine and balsam copaiba possess in checking the increased expectoration of a chronic bronchitis. In diarrhœa, also, they have the same power; they check inordinate se-

cretion, and remove the morbid condition of the mucous membrane on which it depends, by some effect produced on the surface of that membrane, but in what manner this is accomplished we know not. In severe cases of this gleety discharge, one of the most certain remedies we can employ is acetate of lead. You will seldom have occasion to use this or any of the other remedies alluded to, in the case of a healthy person, because the disease will seldom pass into this second or gleety stage, but if it should, and that it is running down the patient, it behoves you to check it as soon as possible, consistent with safety.—Give then the acetate of lead in free and repeated doses, and it is singular to mark what quantities of it patients under such circumstances will bear without any bad consequence ensuing. Hitherto many persons have been afraid to employ it in large quantities, from fear of producing painters' colic; but at present it is known that this disease is to be attributed to the absorption of the carbonate of lead in almost every instance, and that the acetate is comparatively harmless. On this point I can mention one interesting fact, namely, that I have been in the habit of using it constantly, and in considerable doses, for the last six years, and I cannot bring to my recollection one single instance of colic produced by it. One patient in particular, who was under my care, took it in very considerable doses for six weeks, and without any apparent injury. The only cases, in which I have seen the acetate of lead act as a poison, were those in *which it had been used as an external application.* Whether it be that this remedy is more pernicious when employed after the endermic mode, or whether, when applied to the skin, it attracts carbonic acid from the air and is converted into a carbonate, I do not know, but of this I am certain, that where bad effects have followed the employment of the acetate of lead, they have been brought on by its external use. I generally use this remedy in the form of pill, prescribing two grains of the acetate of lead and a quarter of a grain of opium, three times a-day. With the same intention you may employ the turpentines & balsams, which have a powerful effect in checking mucous discharges. Dr. Pemberton, in his work on Abdominal diseases, speaks very highly of the efficacy of balsam copaiba; and I have seen many cases where turpentine has had a great efficacy in arresting chronic diarrhœa. You will see, in the works on materia medica, some other remedies which you can employ with benefit in such cases, but I may mention one which is not generally known,—the alkali of the nux vomica. Strychnine was first used in checking mucous discharges by a German physician, and afterwards by Dr. Graves in this city. The cases, in which it proves most successful, are those in which there is a mere gleety discharge, a copious secretion from the mucous surface without any inflammatory action whatever, or if there be, where it is so low as not to produce the least feverish excitement or pain. Cases of this kind, in which strychnine has been eminently successful, have been published by Dr. Graves. Among others is that of a gentleman, who had sudden calls, so that he often had not time to reach the closestool. He passed a quantity of thin jelly-like substance, and then experienced a transient relief until

another attack came on. This case was cured by the use of strychnine, one-twelfth of a grain, three times a-day, made into pills with crumb of bread or aromatic confection.

I may mention here, that, in treating gleety diarrhœa in this way, one thing should be always borne in mind;—it is always dangerous to check any copious secretion suddenly, and the danger consists in the liability to metastasis or new inflammation. Never forget this. What generally happens is, that the patient's belly begins to swell, and you have ascites rapidly formed. Now, I have never seen a case do well in which this kind of ascites came on after the sudden checking of a diarrhœa, the patients all died. Another consequence is the rapid supervention of pulmonic inflammation, and here the disease is almost as bad as in the bowels. You will ask how this unfavorable termination may be avoided. The best mode is, while you are arresting the discharge from the bowels, to promote a determination to the surface.—While you are using opiates, and stimulants, and astringents, employ general warm bathing, or the hip bath, dress the patient in flannel, and use mild diaphoretics every night. You will also do right in blistering the belly occasionally. In this way you will succeed in curing the worst cases of this chronic flux, without exposing your patient to the risk of new inflammation, or translation of disease to other organs.

One of the most common forms of diarrhœa is the purging which occurs in cases of phthisis; a physician will be called to treat this as often as any other, and it is of importance that you should have correct ideas with respect to its pathology and treatment. The ordinary opinion is, that this kind of diarrhœa is one of the results of hectic fever, and many practitioners in treating the purging of consumptive patients, overlook the actual condition of the intestine, and only take into consideration the state of the whole constitution, of the hectic state of which, the diarrhœa is looked upon as one of the symptoms. The consequence of this is, that they do not proceed on the same principles in the treatment of this as of other similar affections of the intestinal canal. Now I would impress upon you, that you should always consider the diarrhœa of phthisis as depending in almost every instance on enteric inflammation. There is no fact in medicine better established than this. Persons think it is the hectic which produces the purgation, but I believe the converse of this proposition is often much nearer the truth, and that the constant diarrhœa often produces and keeps up the hectic. If you examine the digestive tube of a patient who has died with symptoms of phthisical diarrhœa, you will commonly find extensive ulcerations in the colon, cæcum, and ileum. In some cases of consumption, where the purging has been very severe, the amount of disease will often be found to be quite extraordinary; I have often seen the whole of the lower part of the tube one sheet of extensive ulceration. I find I have not brought up any specimens of the effect of phthisical diarrhœa from the museum, but will exhibit them at our next meeting. The preparations before us are those which are illustrative of dysentery, but they will convey to you a good idea of the

state of the great intestine in the diarrhœa of consumption, for the effects are nearly the same. Observe now, gentlemen, the importance of this fact, and recollect that in treating every case of consumption with diarrhœa you will have constantly to bear in mind this enteric complication. Recollect, also, that one of the best means of stopping it, when other remedies have failed, is a blister applied over the abdomen. I could bring forward several cases in which every thing had been tried without success, when a blister was applied to the belly, and from the time it rose, the patient ceased to be troubled with diarrhœa, and continued so up to the period of death. I do not mean that you should in these cases proceed to attack the enteritis with the same vigour as you would a similar disease in the healthy subject. Generally speaking, I believe this form of enteritis, to be incurable, but it is of importance that you should be aware of this enteric complication in phthisis, and when you are called in to treat such a case you should carefully avoid prescribing any thing calculated to add to the existing irritation.

Before I quit this subject, I wish to make one remark by the way of caution. It not unfrequently happens that a person, labouring under chronic diarrhœa, comes to consult a medical practitioner, and tells him that he has been suffering from this complaint for months, that he has eight or nine discharges by stool in the day, and that he has been under the care of five or six doctors in succession without any benefit. Well, you are determined to have your trial too, and you commence operations by putting him on full doses of acetate of lead. After a week or a fortnight he comes back and tells you he is not a bit the better. You then try turpentine or balsam copaiba—no use. Nitrate of silver—the same result. The man gets tired of you in turn, and perhaps goes to a surgeon to ask his advice. The surgeon examines the rectum carefully, and finds at a short distance from the anus, an ulcer, which he immediately touches with a strong solution of the nitrate of silver. The ulcer begins to heal, and accordingly as it heals, the irritation of gut ceases, and the diarrhœa goes off. The surgeon is extolled to the skies, and the doctors disgraced forever in the opinion of the patient. Now this is not an uncommon case. I have seen several instances of it, and I must tell you I was once mistaken in this way myself. These ulcers are situated close to the verge of the anus, they occur chiefly in persons of broken down constitution, and those who have taken a great deal of mercury. They produce irritation in the colon, tenesmus, griping, frequent discharges by the stool, and, most commonly during the straining, a little blood is passed. During the course of the last summer, I treated a soldier for this affection, who had been discharged from the East India Company's service, (as was stated in his discharge;) for incurable dysentery. I examined the rectum, and finding some ulcers close to the anus, had them touched with the nitrate of silver. Under this treatment a rapid amendment took place; and in the space of three weeks the man was discharged quite cured. Now, are you to make this examination in every case? I believe you will act rightly in doing so in every case of chronic di-

arrhœa in the male, but the examination is absolutely necessary in all cases under the following circumstances: first, when the diarrhœa has been of long standing; secondly, when it has resisted a great variety of treatment; thirdly, when it is combined with tenesmus and a desire of sitting on the night-chair after a stool has been passed, showing irritability of the lower part of the great intestine; and lastly, when the patient's health does not appear to be much affected as it naturally should be, where there was long-continued disease of a large portion of the great intestine. A patient will come to consult you, who will inform you that he has had eight or ten alvine evacuations every day for the last six months, and yet he eats heartily and looks quite well. Under these circumstances, the cause of diarrhœa will generally be found to be ulceration of limited extent low down the tube, and capable of being quickly and effectually removed by a strong solution of the nitrate of silver. I shall recapitulate all the circumstances under which an examination is indispensable; where the symptoms have been persistent, have resisted a variety of treatment, are accompanied by tenesmus, and where the injury done to the general health is not in proportion to the duration of the disease. I may mention here, that a medical friend of mine has communicated to me the particulars of another case of this form of diarrhœa in a soldier who was invalided on this account, and who experienced sudden and permanent relief from the application of nitrate of silver to some ulcerated spots which were discovered near the termination of the rectum.—*Ibid*, *March* 1*st*, 1834.

5. *Some Points in the Anatomy, Physiology, and Pathology of the Vertebra, Column.*—The bulletin of the "Anatomical Society," in the *Archives Générales de Médecine* for March contains a paper by M. Chassaignac, under the above title, which is worthy of notice, and of which the following is the substance:—

In this paper M. Chassaignac draws the attention of the "Anatomical Society" to the existence of certain osseous tubercles, situated at the base and behind the transverse processes of the lumber vertebræ, on the same line with the articular processes, but a little below them. These little tubercles present the appearance of a mamellated process, especially in the two last dorsal vertebræ, and serve as points of attachment to the tendinous slips of the longissimus dorsi muscle, which has been erroneously described as attached to the articular processes.

The sixth cervical vertebræ also presents another tubercle, which we find, but in a less marked degree, in the other vertebræ of the neck. This tubercle is placed in front of the transverse process, and is the more prominent as the individual is advanced in age; it varies considerably, both in size and form, in some subjects being nothing but a simple osseous slip; in others forming a perfect hook, with the concavity turned forward. This process corresponds with the primary carotid artery, which is placed in front, and a little to the inner side of it, and furnishes so certain a guide to the vessel, that by placing a finger on the eminence, we plunge a scalpel into the artery with the eyes shut, without any previous incision. In consequence of this connex-

ion, M. Chassaignac has given it the name of carotid tubercle. The process can be easily felt through the integuments, at least in the dead body, being only covered by the skin, subcutaneous muscle, cervical fascia, and exterior edge of the sterno-cleido-mastoid muscle. To find it, we have merely to extend the neck slightly, and press the finger on the inner edge of the above-mentioned muscle, two inches above the clavicle; at the same time we should be careful that the neck is perfectly straight, for the least rotation is enough to alter the relations between the artery and tubercle. In the living body the process is not so easily discovered, in consequence of the greater resistance given by the subcutaneous and sterno-mastoid muscles.

In an anatomical point of view, the tubercle of which we speak serves to distinguish the sixth cervical vertebra from all the others, and to determine in a positive manner the situation of different organs in the cervical region. As applied to surgery, a knowledge of this process may serve to direct us with the greatest certainty to the primitive carotid, and in this respect is analogous to the osseous tubercle on the first rib, close to the edge of the subclavian artery. It also presents a surface well fitted as a point d'appui, to compress the vessel in cases of sudden hæmorrhage. In the case of a penetrating wound, with hæmorrhage, inflicted in the neighborhood of this process, the blood may come either from the primary carotid, from the inferior thyroid, from the vertebral artery, or from the posterior or ascending cervical branches. The relations of these different arteries with the process in question may serve to determine the precise source of the hæmorrhage, a question otherwise extremely difficult to resolve. It is immediately below this process that the vertebral artery penetrates into the canal of the cervical vertebræ; the posterior cervical is below, and a little external to it: the inferior thyroid, crossing behind the carotid artery to gain the thyroid body, is also very close to it; the tubercle will, therefore, serve as a useful point *de parte* for the exploration of the surgeon when about to apply one or more ligatures.—Should any difficulty be experienced in seeking this tubercle through the integument, it is immediately obviated by a division of the skin and superficial layer of tissue.—*Lancet, May 24th* 1834.

6. *Experiments upon the Sounds of the Heart.*—M. Majendie having recently drawn the attention of the Academy of Medicine to the above interesting subject, and propounded certain views of his own, which differ most essentially from those usually received, in ascribing the first sound to the shock or impulsion of the apex of the heart during its diastole against the thoracic parietes, and the second sound to the impulsion of the base of the heart during its systole, Professor Bouillaud, who has for many years distinguished himself by his zeal in the promotion of auscultatory medicine, deemed it proper to have recourse to direct experiments similar to those which Dr. Hope performed on asses.

He laid bare the heart of a strong, full-sized cock, having previously satisfied himself by auscultation that its two sounds might be dis-

tinctly heard. He then listened to its action at first while enveloped in the pericardium, and then when divested of it; with the naked ear, and with the stethoscope; and not satisfied with one examination, he made several; and the result of these was, that he could always hear quite distinctly the double sound, or tic-tac of the heart, although there was no point of contact between the organ and any part of the thoracic walls. The friction indeed of the heart against the end of the stethoscope caused a particular sound; but this sound, (simply one of rubbing,) was so very different from the tic-tac of the organ itself, that it is almost quite impossible that they can ever be mistaken for each other. When the heart was cut out, by being separated from its attachments, it continued to beat for a few moments; but these beats of the empty organ were not accompanied with any perceptible sounds.

The preceding experiment was repeated twice upon rabbits with the same results; viz. the sounds of the heart were most distinctly heard, although neither during its diastole nor during its systole could it come in contact with the thoracic walls.

In conclusion, the Professor states that the results of his direct examination of the sounds of the heart have confirmed him in the opinion that the double bruit or tic-tac, which imitates so closely the clicks of a valve, is, in fact, to be attributed to the play of the valves of the heart.—*Med. Chirurg. Rev. and Journal Hebdomadaire, No.* 9, 1834.

7. *On the relations of the cranium to the Organ of Hearing.*—Professor Mojon, of Geneva, in a memoir read before the Royal Academy of Medicine, on the 25th of March last, has suggested some novel and very interesting speculations on this subject. Hitherto we have been led to view the cranium only as a safe recipient of the cerebral mass and of its appendages; but M. M. ingeniously supposes that it serves at the same time as an harmonic case, or drum, to the auditory organs. Treviranus, Esser, and others had already observed that the tympanum is not essentially necessary to the transmission of sounds, and that the sonorous undulations may be conveyed to the nerve of hearing by the medium of the cranial bones; but no one, before our author, had attracted the attention of physiologists to the curious relations which seem to exist between certain states of the cranial bones and the power of discriminating musical sounds.

The post mortem examination of Dr. Bennati, first suggested to M. M. the following speculations, and they arose from his observing that the bones of the cranium were much thinner than usual, translucent at many points, and soldered together along the line of the sutures.

A similar condition of the cranial bones has subsequently been found by him in the body of another celebrated musician.

This coincidence of cranial attenuation, and musical endowments, led M. Mojon to consider whether it was possible that the one might be related to the other as cause and effect: and he has been induced by numerous observations to infer that the cranium is by no means quite passive, in the perception of sounds, that differences in the thickness

of its walls may have very considerable influence in determining the degree of acuteness of the faculty, and therefore that it may be regarded as a sort of harmonic case which communicates its vibrations to the organs of hearing.

In confirmation of these views our author alludes to the cases of deaf people, who often can perceive very distinctly the sounds of a piano, or organ, by applying one extremity of an iron rod to their forehead; and the other to the instrument; and who may be made to hear what is said to them if only the voice is directed by a speaking trumpet upon some part of the forehead. It is not unfrequently also that a person whose hearing is indistinct, and who chances to wear a wig, can listen with much greater facility when the head is quite bare, than when it is covered.

The curious observations of M. Perier, on patients who had been trepanned, and who were found to hear quite distinctly any sound directed upon the cicatrix, even when both ears were effectually plugged, (vide our last No.) may also be mentioned as illustrative of M. Mojon's speculations.

Comparative anatomy shows that in a number of animals the transmission of sounds to the organ of hearing is assisted by numerous large sinuses, hollowed out in the bones of the cranium. To us it seems by no means improbable that the musical endowments of the feathered tribes may be in some degree at least modified, or influenced by the very attenuated condition of their cranial bones, and by the existence of the elastic lamellæ, which are found between their supernumerary cavities, as well as the passages or canals which extend into the labyrinth.

The only practical deduction from the preceding views, regards the assistance which may possibly be derived from attention to them, in our diagnosis of deafness, when we wish to discover whether it is owing to a palsied state of the auditory nerves themselves, or merely to some defect or injury of the adjunct members of the auditory apparatus. The every day occurrence of a person squeezing his head with both hands to deaden any very loud noise, may very probably effect the desired purpose, as well by interrupting the cranial vibrations, as by the direct obstruction of the auditory passages.--*Journ. Hebdom. No.* 16. 1834.

8. *Structure and Functions of the Skin.*—The *Gazette Médicale de Paris*, for the 8th of February last, contains an analysis of a highly interesting memoir presented to the Royal Academy of Sciences, by MM. Bresshet and Roussel de Vauzeme, on the structure and functions of the skin. In this memoir the authors endeavor to establish—

1st. That there exists in the skin an apparatus for the secretion of sweat, consisting of a glandular parenchyma which secretes this liquid, and of canals which pour it out on the surface of the body. These excretory canals are disposed in a spiral form, and open very obliquely under the scales of the epidermis.

2d. That the organs of absorption differ in some respect from the

lymphatic vessels or veins, with which they nevertheless appear to communicate. These organs consist of transparent canals, of great fragility, branching or forming little arches of communication one with another, but in which we can discover no orifice or terminal mouth, which could serve for the purpose of absorption. It is this which leads us to believe that this function cannot take place by a kind of suction, but rather by imbibition, or by a mechanism, analogous to that of endosmose.

3d. That the medium in which these canals are situated, is a substance produced by a true secretion, which being strongly hygrometric, forms a body, by the medium of which the phenomenon, which we still call absorption, is effected; this absorption is only more promptly and more easily produced on mucous surfaces, because on these surfaces, the mucosity, which is analogous in more than one respect to an epidermic body, is less dense and more miscible with the liquids which are to be absorbed.

4th. That the papillary bodies are truly nervous, and the nervous filaments which enter into the composition of each papilla, do not terminate, (by bundles,) so that each fibril is free and isolated, but the nervous ramuscules appear to have terminal arches.

5th. That the papillæ are enveloped in a particular membrane, and in a layer formed by the epidermic corneus substance.

6th. That these papillæ, sanguineous vessels of a much smaller size than the nervous filaments penetrate.

7th. That the different layers of epidermic corneous substances constitute a separate apparatus, composed of an organ of secretion and of a substance, at first placed in fibres perpendicular to the derma, but which afterwards becomes horizontal. The fibres or small stems result from the superposition of small scales; and the epidermis, properly so called, is but a part of these stems situated at the greatest distance from the derma.

8th. That in this epidermic substance, formed of scaly stems, are found absorbing canals and nervous papillæ.

9th. Finally, independently of the apparatus for the secretion of the corneus epidermic substance, there exists in the skin, towards the external face of the derma a small apparatus for the secretion of colouring matter.—*Gaz. Med. Feb. 8th*, 1834.

9th. *Influence of Gravity, and of a Depending Position on the circulation of the Blood, in Health and in Disease.* To appreciate properly the importance oft hese influences, it is proper that we attend for a few moments to the condition of the circulation in different parts of the body in its most frequent attitudes and postures; viz. the vertical or upright, and the horizontal. As the former is the most frequently repeated and longest continued, it may therefore be reasonably believed to exert a more influential operation on the current of the blood than the other. Let us consider the effect of the upright position of the body, (and this, we need scarcely say, includes the sitting, as well as the standing posture,) and we shall at once perceive that the arterial cir-

culation in the inferior extremities is thereby facilitated, while the venous circulation is proportionally impeded. It is not therefore surprising that as the body advances in years, the operation of gravity which is acting constantly, except during sleep, against the venous current, should on many occasions induce engorgement of the veins of the leg, giving rise to varices, and to obstinate ulcers. The circumstance of these being almost peculiar to the lower limbs, can be explained only on the principle we have stated. The condition of the circulation through the head is the very reverse; the arterial current has to ascend against the gravity of the blood, whereas the venous current downwards is favoured by it. Whenever the upright posture is changed for another, say the horizontal, the circulation is very perceptibly affected; the veins of the face and neck become swollen and livid, the carotids and temporal arteries pulsate with greater force, and head-ache and confusion of thought are often induced. These phenomena are still more rapidly and more strikingly developed if the head is lower than the rest of the body. From this example we perceive that the veins of the head and neck are nearly passive tubes; their contractile power is very small, no doubt from its being seldom called into play; and hence they become easily distended whenever the current of their blood is not favoured by gravity. The contractile power of the veins of the upper and lower extremities is much greater; but in the case of the latter it is often much weakened by their almost continued state of distention to which they are exposed.

Now the circulation through the other parts of the body also is affected, and that too very materially, by the influence of the gravity of the blood, but in different degrees according to their situations and positions. As a general truth we may assert, that whenever the venous circulation is favoured by the gravity of the blood under ordinary circumstances, *there* will congestions be apt to take place, or to be much increased when they have already taken place, by any change of the accustomed position; and the reason of this is, that such veins have but little contractile power to aid in propelling their contents. To return to the subject of the cephalic circulation, is it not a fact of daily observation, that scarcely any one is able to continne long in a strictly horizontal position? the head must be somewhat raised above the level of the body, else unpleasant feelings come on, which not only prevent sleep, but may induce dangerous symptoms. It is not improbable that the less free return of the venous blood from the head when we lie down, may have something to do in the phenomena of sleep.—And is it not, in part at least, this cause which keeps up the desire for sleep beyond the requisite period of repose; so that the longer we remain in bed, the longer still we wish to remain? It is not unfrequent to observe in elderly patients who have been, from whatever cause, long confined to bed, a set of nervous and cerebral symptoms supervene, and these may resist every means of relief which may be devised. The perceptive and intellectual faculties become dull and inactive; a state of torpor and apathy, of greater or less degree in different cases, comes on; the patient is unwilling to be troubled with anything, as the

answering of questions, and so forth; and when he does return an answer, perhaps it is confused and rambling. These are alarming symptoms, and if they continue and become aggravated we can have no hope of saving our patient.

On dissection of such cases we usually discover some degree of encephalic congestion, and perhaps a trifling effusion within the ventricles. We deem it not improbable that the true source and origin of most of the mischief are to be sought for in the altered state of the cephalic circulation in consequence of the more frequent and longer continued decubitus or position in the horizontal attitude. As it is with the head, so it is with other parts of the body, when they are kept for a length of time in a depending posture. In the chest the stasis of the blood is always more considerable in those parts of the respiratory organs which are lowest; and it has often been remarked, that pneumonia, especially when it attacks those who have been long bed-ridden, very generally affects the base of the lungs. Perhaps some curious and interesting results might be obtained by endeavouring to ascertain the comparative frequency of pneumonia on the left and on the right side, of engorgements of the liver, and of the spleen, in relation to the ordinary position of the patients during their sleep. It is quite possible that the blood may acquire a tendency to accumulation in particular organs on that side which the person usually assumes while asleep.

In our July number, of last year, there is an interesting memoir of M. Piorry, on what he designated "pneumonia hypostatica," or pneumonia arising from a continued state of congestion of certain parts of the lungs, kept up by long confinement in bed. Almost all the cases occurred in old infirm patients, admitted into the La Salpetriere as objects of charity. The mere confinement to bed appeared often to bring on cough and other pectoral symptoms, and these were found to be quite irremediable, if the patients were kept all day in the horizontal position.

Auscultation readily discovered the seat of the pulmonary lesion; the dullness on percussion, and the absence of the respiratory murmur, with the consecutive râles, heard on each side of the spine, showed that it was the posterior part of the lungs which were chiefly affected; and the post-mortem examination confirmed in every case the accuracy of the diagnosis.—[Ed.]

The injurious effects of a depending position are well illustrated in the case of the female mamma, when not properly supported, especially during lactation; the veins become much enlarged and distended, and not unfrequently severe darting pains are felt through the organ, giving rise to apprehensions of the commencement of serious disease. Then, too, the very common malady of hæmorrhoids is another striking example of the influence of gravity on the circulation of the blood; and the phenomena of many uterine affections also afford testimony to its operation: thus numerous cases of inflammation of the womb are induced by the patients too soon leaving bed, and getting up; the change from the horizontal to the vertical position favours the more

easy flow of blood along the uterine arteries, while it retards the returning current in the veins: hence, therefore, we may readily explain the occurrence of inflammation or hæmorrhage under such circumstances. Every obstetrical physician knows that it is of paramount importance to enjoin a reclining posture in all affections of the female internal organs of generation.

Again; it is the agency of mere gravity which induces a varicose state of the spermatic veins in men, constituting the diseases of varicocele and cirsocele, and these diseases are invariably aggravated by all causes which are capable of increasing the force of the gravity of the blood, or of relaxing the coats of the blood-vessels, such as exercise, long standing, heat, &c. The use of a well-made and well-applied suspensory affords by far the most effectual relief. But the phenomena which result from the influence of gravity are still more apparent and striking in the extremities of the body. If the hand has been long hanging by the side, especially when it is warm at the same time, the veins become full and distended, every minute ramification can be traced, and the whole volume of the soft parts is greatly increased, so that even a feeling of unpleasant tension may be induced: by merely raising the hand and arm, and keeping it for some time in that position, all these appearances vanish, and the member resumes its wonted condition. This affords one of the best examples of the influence of mere gravity on sanguineous accumulations; and we can readily believe that the upper extremities would very often exhibit the effects of such accumulations, were it not for the free and frequent movements of them in all directions:—In the case of the lower limbs, the movements are much more limited, and their position is almost always unfavourable, except during sleep, to the return of the venous blood; whether we are walking, standing, or sitting, the blood has to rise from the feet upwards against the force of its gravity. Hence it is that the varicose distentions of the veins of the foot, leg, and thigh are so frequent, and especially whenever there is any superadded cause, which may impede the easy reflux of the circulating fluid—the pressure of the gravid uterus, of an enlarged ovary, &c. is well known to be a common cause of such a malady. When the larger veins of the extremity have been varicose for some time, and especially if the patient neglects the proper means of relief, the capillary veins become gradually distended and engorged—the surrounding cellular substance becomes inflamed, hardened, and ecchymosed, in consequence of blood oozing out occasionally from the over-distended vessels, and being infiltrated into the cellular parenchyma. It is under these circumstances that the skin not unfrequently gives way, and ulcers, most painful and difficult to heal, become formed. Having thus briefly glanced at some of the most illustrative examples of the influence of gravity, as a cause of inconvenience and disease, we shall now direct the attention of our readers, for a few moments, to certain maladies in which the influence of this agent is conspicuously observed.

In severe cephalic neuralgias, the horizontal position is often found to augment the sufferings of the patient; and the only attitude in which

he can find any rest, is with his head well elevated. We do not mean to imply that these cases are of an inflammatory nature, yet it is very evident that they are much aggravated by any sanguineous congestion in the parts affected. In phrenitis, otitis, erysipelas of the face, the higher the head is kept raised, the more relief the patient experiences; and when any local inflammation, as of one ear, exists, we uniformly observe that the symptoms are mitigated by lying on the opposite side. Ophthalmia has often been translated from one eye to the other, by the person continuing to lie on the sound side when the inflammation was abating in the other, and this alternation of the seat of the disease may be repeated several times, if the physician's attention be not directed to the real cause. The spreading of erysipelas on the trunk appears to be not unfrequently influenced by the position of the patient; the tendency to spread is generally in a direction to the most depending parts—those on which the patient is resting; and rarely upwards, or to a part more elevated than the spot from which it has started. We have already alluded to the frequency of pneumonic attacks of the lower and back parts of the lungs, in patients who have been long bed-ridden, from whatever cause; and it is unnecessary to do more than merely to point to diseases of the rectum, uterus, and male organs of generation, in proof of the influence of position. In the treatment of ulcers of the leg, we are firmly of the opinion that repose of the limb, in the horizontal posture, is by far the most important of all therapeutic means; poultices, lotions, and ointments will often all fail, unless this necessary adjunct be attended to at the same time; and even when the patient is not strictly confined, do we not invariably employ what may be called compensating remedies, viz. strips of adhesive plaster, or rollers from the toes up the whole length of the limb? and the effect of these is well known to be, the taking off the pressure of the superincumbent column of blood from the veins of the foot and leg.

M. Gerdy, about a twelvemonth ago, instituted a number of experiments at the Hospital St. Louis, on the different methods of treating ulcers; different sets of patients were submitted to the different methods, and each method was employed by itself, in order that the results of each might be justly appreciated. Many of the details have been published in the article "Attitude," in the Nouveau Dictionnaire de Médécine. We shall mention a few of them.

When the limb on which an ulcer existed was kept upon an ascending inclined plane, it was found that the sore became pale, the suppuration was diminished in quantity, and a crust soon began to be formed upon the surface, and under this the healing went on more or less rapidly. If strips of adhesive plaster were used, at the same time that the elevated inclined position was retained, the cure was still more rapid: it was by combining the elevation with the use of adhesive bandages, and the entire repose of the limb, that cicatrization of the ulcer was most speedily effected. Several cases of severe contusion were treated on the same plan, with very decided success—the contused limbs being retained in an elevated inclined position during the whole

period of the treatment; the decrease of the pain, tension, and tumefaction was sometimes truly remarkable.

M. Gerdy is of opinion, that many white swellings of the joints may be very materially benefited by an application of the principles which have directed his treatment of ulcers. He recommends that the affected limb be kept perfectly quiet, and on an inclined plane, so that the foot is considerably more elevated than the thigh. He is not yet provided with the reports of any cases to prove the correctness of his ideas; but in one case of elephantiasis of the leg, treated by elevation of the limb, and compression at the same time, the result was most satisfactory—the subsidence of the enlargement was very striking.—*Med. Chir. Rev. and Archiv. Générales, Dec.* 1833.—*Ame. Journ. of the Med. Sciences.*

10. *Of the Chemical Properties of the Secretions in Health and Disease, and of the existence of Electrical Currents determined in Organized Bodies by the Acidity and Alkalinity of the Membranes.* By M. Donne.—1. From the whole surface of the skin is secreted an acid humour. The sweat, however, instead of being, as is generally said, very acid under the arm-pits, and around the genital organs, is, on the contrary, as alkaline in these parts as at the toes.

2. The digestive canal from the mouth to the anus secretes an alkaline mucus, except in the stomach, where the gastric juice is very acid. Thus the saliva and the mucus of the œsophagus, as far as the cardia, are alkaline in a healthy state, and become acid only in consequence of disease. From the pylorus to the end of the intestinal canal, the mucus furnished by the mucous membrane itself is alkaline.

3. Serous and synovial membranes all secrete an alkaline liquor in a normal state, which in certain diseases sometimes becomes acid.

4. The external acid and the internal alkaline membranes of the human body represent the two poles of a pile, the electrical effects of which are appreciable by the galvanometer. Thus, in placing one of the conductors of the instrument in contact with the mucous membrane of the mouth, and the other in contact with the skin, the magnetic needle deviates fifteen, twenty, and even thirty degrees, according to the sensibility of the galvanometer, and its direction indicates that the mucous or alkaline membrane takes negative electricity; and the cutaneous membrane positive electricity.

Independently of these two great surfaces presenting opposite chemical states, there exist other organs, the one class of which may be called acid, and the other alkaline, and which produce the same result; between the stomach, for instance, and the liver of all animals, extremely powerful electrical currents are found.

5. M. Donné has observed electrical phenomena of the same kind in vegetables, of which he gives examples, but electrical currents in vegetables are not produced by the acid or alkaline states of the parts as in animals, because the juice of fruits, at least such as M. Donné examined, is throughout more or less acid. Accordingly, however, to the beautiful experiments of M. Biot, the juices which arrive by the

pedicle are modified on some part of the fruit, and it is perhaps to this difference of the chemical composition of the juices of the two extremities that the electrical phenomena are to be attributed.

6. The acid humours of the economy may become alkaline, and *vice versa.*

7. Acidity is usually the result of inflammation, properly speaking, which may be produced by sympathy in an organ situated at a distance from the inflamed point. Thus the saliva becomes very acid in inflammation of the stomach.

8. The acid which is developed in inflammation appears to be most frequently the hydrochloric. The presence of this acid produces coagulation of the albuminous part of the lymph, or of the serosity which abounds in inflamed parts. The false membranes in the serous cavities, the albuginous spots of the eye, the coagulable lymph of wounds, the thickenings of certain organs, and many other morbid productions resulting from inflammation, in which there is found by analysis only albumen, more or less coagulated, are owing to this.

Pus itself is produced by the action of the acid on albuminous lymph. It is a kind of union of the acid with the albumen. If free acid be not found in the liquids effused on the surface of inflamed organs, it is owing to the humours of the body being very alkaline, and containing sufficient potass and soda to neutralize the acid. In the memoir, however, of which this paper is a summary, M. Donné has cited many cases in which *pus* and even the serum effused into the abdomen in consequence of *peritonitis* were found acid. An analogous case was reported to M. Donné by M. Dumas, and another is mentioned by Berzelius in his treatise on chemistry.

9. The changes in the chemical nature of the secretions react on the different systems of the economy, forming an interesting order of lesions and symptoms in connexion with the etiology, the diagnosis, and even the treatment of diseases. These changes according to M. Donné, produce modifications of the electrical currents which exist between the different organs of the economy.—*Ed. Med. and Sur. Jour. and Jour. Hebdom. Feb.* 1834.—*Ame. Jour. of the Med. Sciences.*

11. *On Cancer of the Stomach.* By WILLIAM STOKES, M. D.—[Extracted from his Lectures on the Theory and Practice of Medicine, delivered at the Medical School, Park street.] Pathologists are divided as to what is the cause of cancer of the stomach, but the best informed are of opinion that, in those cases of gastric disorganization, which are called cancer or scirrhus, all that can be demonstrated by the knife is referable to the results of chronic inflammation. This is a different proposition from saying, that chronic inflammation *alone* will produce cancer. As yet we know little of cancer; dissection of cancerous organs gives but scanty information; but this seems certain, that, in particular conditions of the economy, an inflammation of the stomach will end in cancerous disease. Here is an excellent preparation of the stomach of a person who died of cancer of that organ. For several years before his death he had a jaundiced look, an emaci-

ated appearance, frequent vomiting, and severe pain towards the termination of the digestive process, a circumstance which denotes disease of the pylorus. He had also hæmatamesis. You see the inner surface in the vicinity of the pylorus presents ulcerations of the mucous membrane and thickening of the sub-mucous of the cellular tissue. The pylorus itself does not appear to be at all contracted, but the parts around it are in a state of extraordinary disease. Look at the preparation again, and say what could bitters, or acids, or alkalies, or tonics have effected in a case of such extensive disease. Here is a stomach, in a state of long-continued chronic inflammation, and exhibiting lesions, which some would designate as cancer of that organ. Now, though I do not know the treatment which this patient underwent, I would venture to say, that he took plenty of the usual anti-dyspeptic medicines. Yet in a vast number of cases, when enormous quantities of these remedies are taken daily, the stomach is in as bad a state as that preparation exhibits, and I feel the more strongly convinced of this, because I am aware that many persons die after having gone through the whole routine of anti-dyspeptic practice, and, when they are opened after death, incurable disease of the stomach is discovered. Here is an example of vast cancerous disease of the stomach; here is a very interesting specimen of chronic gastritis, chiefly representing a most remarkable and circumscribed ulcer at the termination of the stomach. Here you see is the ulcer, with raised, thickened, and introverted edges. Now, in all probability this ulceration was exceedingly chronic, for you perceive nature has been at work with it, and has made some attempts at preparation. It is in such a case as this that patients generally refer their pain to a particular part of the stomach: digestion goes on without any pain until the food reaches a certain point, when acute pain is felt, and this continues until it is relieved by vomiting. The occurrence of this symptom, after an attack of acute gastritis, would lead you to suspect the formation of one or more ulcers, and the persistence of this localized pain should induce you to persevere in employing every means in your power calculated to remove the disease. The preparation which I now exhibit is interesting, as it shows the effect of corrosive poison on the stomach. The patient, to whom this stomach belonged, died in consequence of swallowing a quantity of sulphuric acid; here you see the consequences, the mucous membrane is black and disorganized, exhibiting this ragged appearance. In some cases of malignant fever we have found the stomach presenting somewhat similar appearances; and the same state of the stomach is described by some writers as occurring in cases of intertropical fever. Here is a preparation, which you should inspect, chronic gastritis with a large ulcerated patch in the centre of the stomach. Here is another example of extensive cancerous disease.

A very few words will suffice for the state of the science on the subject of cancer of the stomach. It is very hard, nay, even almost impossible, to draw a line of distinction between the symptoms of cancer of the stomach and chronic gastritis, and I believe it is admitted on all hands that the same causes give rise to both. Long continued irrita-

tion will, in one case, produce cancer of the stomach, in another, chronic gastritis. Again, it is admitted by many, that what is called cancerous ulceration of the stomach has no appreciable difference from ulceration in various other organs; and hence some persons have gone so far as to say that there is no such thing as cancer of the stomach, (separately considered,) and that all the cases adduced of it are nothing more than so many forms of chronic gastritis. In the present state of medicine, we are not, indeed, possessed of any data which would enable us to come to a final determination on this question. It is certainly impossible to determine this point; but if there be any thing peculiar in cancerous matter, similar to tubercular or melanotic matter, there is no reason why, under the influence of inflammation, it should not be developed in the stomach, as well as in any other part of the body. But whatever views we entertain on this subject, we must confess that, in the majority of cases, there is a chronic gastritis, and that the principles of treatment which would alleviate the patient's sufferings and prolong life, *are those which are calculated to prevent the occurrence of gastric inflammation.* The more you approximate the treatment of cancer to that of chronic gastritis, the greater comfort will you afford your patient, and the more will you prolong his existence.

The most celebrated case on record of this affection is that of the Emperor Napoleon. He died with extensive ulceration of the stomach, which, of course, was called "*cancerous*," and there was also distinct traces of disease of the liver, the mucous coat of the intestines, and the lungs. His disease was believed by himself to have originated in the stomach, and to this opinion he adhered, notwithstanding the results of some solemn consultations, at one of which his affection was declared to be an "*obstruction of the liver*," with a "*scorbutic discrasy.*" At another it was pronounced to be a "*chronic hepatitis*," and a course of mercury recommended! When we reflect on this, and read in the account by Gaubert, (which you will see in the *Examen des Doctrines Médicales*,) the regimen which was used, and the list of stimulating medicaments employed, you will not wonder at the words of this great man, when he was pressed to take more drugs, to swallow the universal nostrum, mercury, to which he had the greatest aversion. "Your disgusting preparations are good for nothing. Medicine is a collection of blind prescriptions, which destroy the poor, sometimes succeed with the rich, but whose whole results are more injurious than useful to humanity." But he got mercury, notwithstanding, mercury for his "digestive organs;" to "excite the liver;" to "remove its obstruction," and mercury to create bile, and purgatives to remove it; and tonics, and antacids, and stimulants; and he died in torture, and his body was opened, and the stomach was found "*cancerous.*"

I should not omit mentioning to you, that in those cases of chronic gastritis, which run on to an incurable stage, the best treatment consists in a careful regulation of diet, in keeping the bowels open by enemata, or the very mildest laxatives, and in avoiding every thing capable of producing excitement. You will also derive advantage from the employment of gentle counter-irritation, and from the internal use of

narcotics, which in such cases appear to have a more beneficial effect than any other class of remedies. With the exception of these, I do not know any other kind of medicine you can safely employ; and I believe that, in the majority of cases, you will find that the patients have taken already a great deal too much medicine. Anxious for relief, and urged on by the hope of obtaining some remedy capable of alleviating their sufferings, they have recourse to every grade of quacks, are persuaded to swallow every kind of drug, and are subject to every form of harassing and mischievous treatment. The diet which you prescribe for such patients should be sparing but nutritive; give the stomach as little to do as will be consistent with the support of life and strength; and you may take it as a general rule in the treatment of all chronic affections of the digestive tube, whether cancer of the stomach, scirrhus of the pylorus, or structure of the intestines, that there are two great principles of general application, preserving a gently open state of the bowels, and allaying inflammatory excitement.—*Lond. Med. and Sur. Jour. Feb. 8th*, 1834.—*Amc. Jour. of the Med. Sciences.*

12. *On Duodenitis.* By WILLIAM STOKES, M. D.—I shall not dwell on the subject of duodenitis, as I shall revert to its consideration when speaking of jaundice, because inflammation of the duodenum is a common cause of jaundice, perhaps the most common, if we take the whole of its causes together. You are not to suppose that I wish to inculcate the doctrine that jaundice is a necessary complication in duodenitis, but it has been proved, that there is an extraordinary frequent coincidence between both, and that jaundice very often seems independent of any mechanical cause, such as an obstruction of the biliary ducts. So far from this that in some cases, particularly those which are produced by, or accompany, a duodenitis, we have intense universal jaundice at the same time that the bile is flowing freely into the digestive tube.

The researches of the immortal Bichat gave the first hint which directed the attention of practitioners to the circumstance, that, in many cases where jaundice had existed during life, there was no obstruction or disease in the liver or biliary ducts, but that in such cases there was always more or less inflammation in that part of the digestive tube, into which the bile was immediately discharged, and this led ultimately to the discovery of the connexion which exists between inflammation of the duodenum and jaundice. In treating of the sympathies which depend upon continuity of surface, Bichat refers to the connexion which exists between the surfaces of mucous membranes and the ducts which open on them, and endeavours to show, that the natural mode of excitement in all secreting glands is a stimulus applied to the surface on which their ducts open. As examples of this, he instances the effect which food and other substances, applied to the mucous membrane of the mouth, have in stimulating the salivary glands; the effect which stimulants, applied to the conjunctiva or nose, have on the lachrymal gland, and many others. Hence Broussais concludes that, when the mucous surface of the duodenum is thrown into a state of excitement,

we may have a consequent affection of the liver, for the duodenum bears the same relation to the liver as the mouth does to the parotid glands. That this is frequently the case, I think, is very probable. It is now established, that the cause of the yellowness in what has been called yellow fever, is disease of the upper part of the digestive tube, in which the duodenum is always involved; and that the fever itself, (the typhus icterodes of the nosologists,) has been found to be greatly connected with inflammation of the stomach and duodenum. During the epidemic of 1827, we had in the Meath Hospital a great many cases, which bore a striking resemblance to the yellow fever of warm countries, and particularly in this, that they were accompanied by intense jaundice, and inflammation of the upper part of the digestive tube. You will see in the works of Rush and Lawrence, two of the best American writers on yellow fever, that, of the numerous bodies they examined, there were scarcely any in which the jaundice was found in connexion with liver disease, but that in all cases there was intense inflammation of the digestive surface.—*Ibid.*—*Ibid.*

13. *On Inflammation of the Jejunum.* By William Stokes, M. D —We know very little of the symptoms which characterize inflammation of the jejunum; and it is a curious pathological fact, that this portion of the intestinal tube is of all others the least liable to inflammation. In point of fact, we have no means of ascertaining what are the prominent symptoms of inflammation of the jejunum, because, in almost every case in which jejunitis has been discovered, there has been also extensive disease of the rest of the small intestine. We have cases of simple gastritis; there have been also cases of distinct disease of the duodenum. We may have disease in the lower third of the ilium, unaccompanied by an affection of any other part of the tube. The same thing may occur in the case of the cœcum, colon, or rectum, but it seldom or never occurs so far as the jejunum is concerned.—*Ibid.*—*Ibid.*

14. *On Inflammation of the Ileum.* By William Stokes, M. D.—Inflammation of the ileum is a most important affection, for two reasons; first, in consequence of its extraordinary frequency, and, in the next place, of its insidious latency, the disease generally requiring a considerable degree of tact and experience on the part of the practitioner to make out its diagnosis with certainty. In fever, it is the most frequent of all the forms of intestinal inflammation; and hence Broussais, finding inflammation of the ileum of such constant occurrence in fever, concluded that fever was only symptomatic of intestinal inflammation. Further researches have shown that he was mistaken, and that the inflammation of the digestive tube is, in many cases, secondary; but it is still a circumstance of almost constant occurrence, and in many cases of fever is the cause of death. Now, the portions of the intestinal tube most commonly affected in fever are, the stomach and lower part of the ileum, and the frequent occurrence of this in fever is very remarkable. There are few cases of typhus without it. In some

cases of typhus you will, on examination after death, be astonished to find extensive disease of the intestinal canal, which, during life, had not attracted any particular notice, and this you will most commonly find in the lower part of the ileum. So common is it, that Louis says that ileitis is the grand anatomical feature of typhus fever; that is, had he been obliged to pitch on the lesion of some particular organ as giving a character to typhus, he would say that it was ileitis. There are other diseases, too, in which inflammation of the ileum forms the principal complication. In the diseases of children, which go by the names of worm fever, remittent fever, and bilious fever, I believe that ileitis is generally the first affection, and that the fevers are only symptomatic of it. It constantly occurs at some period or other of tabes mesenterica; and I believe, that in many cases it precedes the affection of the mesenteric glands. It is exceedingly common in phthisis. In every case of phthisis, where diarrhœa has lasted for some time, the probability is, there is ulceration in the cœcum, colon, and lower part of the ileum.

Now, what is the nature of this ileitis? This preparation, (*handing one for inspection,*) which I beg of you to hand round, will furnish a very good illustration of the disease. Here is a portion of the intestine exhibiting various distinct ulcerations of different sizes, occupying the situation of the mucous glands. I do not mean to say, that the character of the disease consists in this distinct ulceration; it is an essential disease of the mucous membrane, and of its glands, which exist in great numbers on the surface of the lower third of the ileum, and are called *solitary* and *aggregate.* These glands frequently take on the inflammatory condition, become softened, run into ulceration, and produce extraordinary sympathetic irritation of the whole system. There has been lately a great deal of discussion with respect to the question—Whether disease begins in the glands or in the mucous membrane, and whether we can separate disease of the glands from disease of the mucous membrane. This has been carried to a great extent, and a change has been attempted to be made in the name of the disease, it being entitled *dothin-enteritis* by those who say that the inflammation commences in the glands. But this I think is a mere refinement, and is carrying the thing too far. It is next to impossible for the glands to be affected without involving the mucous membrane, or for the mucous membrane to be affected without an extension of the disease to the glands. We sometimes, however, see the mucous membrane diseased without the glands being apparently engaged; but I think the glands are never engaged without the co-existence of disease in the mucous membrane. In this preparation you see the mucous membrane is just giving way; and here is an actual slough, where the mucous and submucous tunics have yielded to the inflammation. In the lower portion of the ileum we meet with an infinite variety in the size and number of the ulcerations: in some they are very close and numerous, in others there are only two or three detached ones; in some, the whole circle of the intestine is destroyed, and the ulcer is nearly as broad as the palm of the hand. It is interesting to consider, with respect to the

pathology of the respiratory and digestive systems, how it comes, that ulceration of the mucous membrane is so much more common in the digestive apparatus than in the respiratory. For one ulceration of the bronchial mucous membrane from acute disease, you will have one hundred of the gastro-intestinal. For this peculiarity we cannot clearly account; but there seems to be more development in the digestive than in the respiratory system, and this over-development produces a tendency to disease. This, perhaps, is an approximation to an explanation of the facts; and to this may be added, that the mucous membrane of the intestines is exposed to the influence of a much greater variety of agents. It is difficult to give an accurate idea of the symptoms of ileitis, as we can only arrive at a knowledge of it by negative evidence, or, as the French term it, "*par voie d'exclusion.*"

In a case of gastritis and of inflammation in the upper part of the digestive tube, the most prominent symptoms are thirst and vomiting. In this affection, too, there is thirst, but it is by no means so urgent as in the former cases, and there is generally no vomiting. In a case of acute gastritis there is always a desire for cold drinks. In this disease there is also a desire for fluids, but the patient prefers them warm. Here you perceive two symptoms, connected with the predominance of disease in the upper part of the digestive tube, are absent—vomiting and the desire for cold drinks.

Now, you are aware, that, in case of inflammation of the colon and rectum, the most prominent symptoms are diarrhœa, tenesmus, and the passing of a quantity of morbid secretions. These symptoms, in a case of ileitis, are either wanting, or they are so slight as to excite but very little notice. If then, in a case of intestinal disease, we abstract the characteristic symptoms of disease in the upper and lower part of the digestive tube from the phenomena of the existing disease; if we find that it presents symptoms which do not properly belong to either the stomach, duodenum, colon, or rectum; we conclude that it must depend on a lesion of the remaining part of the canal, and we are, in this way, led to the diagnosis of ileitis. Let us enumerate the symptoms of an ileitis. In the first place, thirst, without a preference for cold drinks; in the next, absence of vomiting; again, in the early period of the disease, there is generally a tympanitic state of the belly, and the patient seldom complains of pain even in fatal cases. This is a point of extreme importance. There is, however, most commonly a degree of tenderness over the ileum, which you will be able to detect by an accurate examination, and this tenderness presents a remarkable difference from the tenderness of gastritis, both in degree and situation. It is very seldom so exquisite as in a case of gastritis, the patient can bear a considerable degree of pressure, and the tenderness, in place of being towards the epigastrium, is situated between the umbilicus and the crest of the ileum on the right side; here pressure excites pain. The tongue in this affection is generally of a dirty-white, pointed, and red along the edges and tip; the pulse is quick and small, and the face is contracted. As to the nature of the discharges from the bowels they are exceedingly various; there has been as yet no diagno-

sis founded on their appearance, and in some fatal cases they have been observed to retain an almost perfectly healthy appearance throughout. What would the gentlemen, who draw their diagnosis from chamber pots, say in such cases? I have seen perfectly natural stools in cases, which immediately after have terminated fatally, and where, on examination after death, there was a vast extent of ulceration in the ileum. In addition to the symptoms just recited, the patient most commonly has *fever*, and this presents itself under various forms, frequently assuming the type of a simple continued fever; hence, in a great many cases, *the patient is supposed to labour under merely simple continued fever, and the existence of extensive inflammation of the ileum is entirely overlooked.* In other instances, there is more or less prostration which increases with the progress of the disease, and the fever frequently receives the appellation of typhoid. Under these circumstances, the patient often gets bark and wine, every means is taken to support his strength and remove the typhoid condition of the system, the inflammation of the intestine is exasperated by neglect and maltreatment, the patient dies, and, on dissection, the ileum presents an enormous sheet of ulcerations.

In cases of this kind, where the diagnosis depends as much on negative as on positive circumstances, it is of importance to have a direct sign, by which we may be able to ascertain with some degree of certainty the existence of a suspected enteric inflammation, and I think I have discovered one, which I believe has not been as yet noticed; this is increased pulsation of the abdominal vessels. In many cases of acute inflammation of the brain, the increased pulsation of the carotids has been frequently remarked, and every one sees that, under such circumstances, there is an undue excitement of these vessels, or, in other words, that there is a want of proportion between the action of the carotids and that of the arteries of the extremities. If your finger be attacked by paronychia the same phenomenon is observed, the artery leading to the inflamed finger beats much stronger than the artery of the corresponding one on the opposite side. From these circumstances I was led to conclude that, in cases of acute inflammation of the digestive tube, there would be increased pulsation of the abdominal aorta; and, on following up the investigation, by examining several persons who had distinct and well-marked intestinal inflammation, I found that my conclusions were well-grounded. In such cases, I found not only a remarkable throbbing of the abdominal aorta, but I also discovered that this throbbing was prolonged to the femoral arteries, and that, on the other hand, there was little or no corresponding excitement in the arteries of the upper extremities.

In inflammation of the ileum the patient generally lies on his back, and avoids motion as much as he possibly can, his skin is dry and harsh; he is feverish; he has thirst, but little desire for cold drinks; he scarcely ever vomits; his alvine dejections are sometimes thin and purgative, sometimes figured and natural. But there is one circumstance which is of considerable importance in pointing out the amount of disease, even in cases where patients have considerable diarrhœa,

and this is, that the diarrhœa is not sufficient to account for the extraordinary prostration. There must be some cause for the great reduction of vital power besides the mere diarrhœa, and I must state to you that there are few diseases which bring on such rapid prostration as inflammation of this portion of the digestive tube. In the advanced stage of this disease, the patients have cold skin, subsultus tendinum, petechiæ, involuntary discharge of urine and fæces, low delirium, coma, gangrenous ulcerations of the back, sinking of the powers of life, effusions into the head and chest, in fact all the symptoms which characterize the last stage of typhus. Generally speaking, the disease is more or less prolonged, and the patients die of exhaustion, but in some cases the approach of death is more sudden and formidable. Some of the ulcers pass deeply into the substance of the intestine, perforate all its coats in succession, the contents of the intestine escape into the peritoneum, and the patient is carried off by a rapid peritonitis.—*Ibid.*—*Ibid.*

15. *Inflammation of the Ileum in Children.* By William Stokes, M. D.—Inflammation of the ileum is very frequently met with in children, and it is most important that you should be aware of the extreme frequency, as well as the symptoms of this disease, in those little creatures. There is one fact in pathology which seems not to be generally acted on, that there is a class of diseases which are intra-uterine, and with which a child may be born. There are a great many cases of this kind on record, but still I must confess, there is a great scope for investigation, and that our knowledge on this subject is imperfect. I believe that any one who has the opportunity of dissecting a great number of still-born children, or of those who die immediately after birth, would, by examining the state of the different cavities, and publishing the results of his examinations, earn for himself very great reputation. It is a well-known fact that children may be born with hydrocephalus, with tubercles in the lungs, with acute inflammation of the stomach; nay more, children have been known to be born with chronic gastritis, and with old ulcerations in the ileum and colon. When children happen to be born with gastro-enteric disease, they are puny and weak: the fact of this occurrence is generally overlooked, the case is considered to be one of general debility, and hence most of those children are lost in consequence of their medical attendants being ignorant of the real nature of the disease. It is a very curious fact, too, that when enteric disease occurs in very young children, it is frequently met with without any accompanying fever, and this is a point of great importance. Here is a fact not generally known. A new-born infant has vomiting, swelled belly, contracted features, but at the same time he has cold skin and feeble pulse; he has no distinct symptoms of fever, and a puny and feeble state of constitution appears to be the prominent symptom. He dies, and, on opening the body, you find distant traces of enteric inflammation. The younger the child is, the less will be the chance of fever

occurring as a sign of enteric inflammation. It seldom happens that this takes place after dentition, but before it is very common.

Now, what are the circumstances which would enable us to recognise this disease in children who have passed the period of first dentition? If you find the child vomiting, thirsty, with swelled belly, hot skin, a tendency to diarrhœa, and erythematous redness about the anus, you may be sure that there is disease of the digestive system; if the child is restless, and you perceive that the symptoms of irritation of the head are coming on, you will be more certain, and in such cases pathology will inform you that the disease is chiefly in the ileum. In the advanced stage the diarrhœa is lessened, but the belly continues tympanitic, the child exhibits traces of long suffering, and the circumstance of the teeth not being developed gives it the appearance of premature old age, which cannot be mistaken by an experienced eye, and is a sign of long continued and extensive intestinal disease. In some cases, the child gets a common attack of diarrhœa; this is neglected, but after going on for two or three days, symptoms of fever begin to appear. Here we arrive at a practical rule. Where a child has diarrhœa, and after laboring under this for a few days, gets an attack of fever, you may be almost sure that it is a case of enteritis, and that you will be acting wisely in treating it as such. In the opinion of many well-informed practitioners, that form of fever which has been called infantile remittent, is only an example of this disease. In proof of this fact, Dr. Marsh, my friend and predecessor in this school, in his paper on jaundice, makes some excellent remarks on this subject. "There is yet one form of diséase of very frequent occurrence, the seat of which is in the stomach and small intestines. That to which I allude is the *infantile remittent fever*, or, as it is vulgarly termed, the *worm fever* of children. Its characteristic symptoms, if closely analysed, will be found all of them to point to the mucous surface as the original seat of morbid action."—*Dublin Hospital Reports, Vol.* 3.

It would be well for medicine, if the valuable information conveyed in Dr. Marsh's paper was more universally diffused. I feel convinced that many children fall victims to mal-practice under circumstances of this kind. A child gets symptoms of diarrhœa, has irregular or bad appetite, and swelled belly, the disease is called worm fever; he gets a dose of calomel and jalap, and perhaps passes some worms; for when we come to speak of worms, we shall find that disease of the mucous surface is intimately connected with worms, and, in the opinion of one practitioner, worms may be the result of enteric inflammation. Well, some worms are passed; the purgative is again used; the child may not pass any more, or he may pass one or two in the week to encourage the practice. But all the symptoms of intestine inflammation, the diarrhœa, the tympanitis, the thirst, the fever, are supposed to depend upon the presence of more worms, and these are to be evacuated by purgative medicine, and thus the affair goes on until the child falls into tabes mesenterica, or gets sympathetic inflammation of the brain, and dies of hydrocephalus. I regret to add, that in many cases of this find the head alone is opened; a little fluid is

discovered in the ventricles of the brain, the doctor's diagnosis of the head is found to be correct, and all parties are satisfied. In cases of this kind, the early application of leeches to the belly, the regulation of diet, keeping the bowels gently open by enemata and mild counter-irritation, would have saved the patient. This is not mere theory, it is but a statement of facts, supported by the experience of practical men.—*Ibid. Feb.* 15*th*, 1834.—*Ibid.*

16. *On Tabes Mesenterica.* By William Stokes, M. D.—The term tabes mesenterica is employed to designate that species of consumption which depends upon disease of the mesenteric glands. The common idea formerly entertained with respect to this affection, and, I believe still to a great extent, is, that the disease first commenced in the mucous glands, and from these extended to the lymphatic ganglia of the mesentery, which in their turn became enlarged, thickened, and less pervious, so that a sufficient share of nutriment cannot be absorbed, the consequence of which is that the patient dies of atrophy and exhaustion. With such views of the case, the principles of treatment consisted in employing a class of medicines called deobstruent, the operation of which was supposed to be efficacious in removing this obstruction, this deposition in the substance of the mesenteric glands, and the enlargement by which it was accompanied. This was, and this, I am sorry to say, is the idea still entertained by many. What is the actual state of the science with respect to this disease? It is found that the glands are certainly changed in their structure, and that they are manifestly enlarged; but this is only a link in the chain of phenomena, for it has been proved that in *the majority of cases the disease is ushered in by enteritis, and that the swelling of the glands is the result of disease, propagated along the course of the lymphatics from the mucous surface of the intestines to the mesenteric ganglia.* This preparation, which I shall send round, will give you an idea of the actual state of the disease. Here is one of the glands which has been cut through; it exhibits the cheesy texture commonly observed in this disease, but you can perceive there are a number of lines running towards each of the glands; these are the engorged lymphatics, which you see correspond with ulcers on the mucous surface of the small intestine. That this is the true pathology of the disease will appear from the following circumstances: First, it has been proved that the glands of the mesentery commonly become inflamed, enlarged, and even suppurate, in cases of inflammation of the mucous membrane of the intestinal canal in the adult. A patient gets enteric inflammation and dies; on dissection we find distinct marks of disease in the intestines, and, in addition to this, we find the glands evidently diseased. Here is one fact. In the next place, it has been proved that in a great many cases of tabes mesenterica, if you retrace the history of the disease, if you go back to its first and earliest phenomena, you will find that it began with the symptoms of what has been termed remittent fever, or that the patient had enteritis or diarrhœa, which afterwards became chronic, and that then the symptoms of tabes mesenterica began to

appear. In the third place, you will find that in a vast number of cases, where a fatal termination has occurred, if you pursue your dissection, and slit up the whole of the ileum, you will discover numerous old ulcerations of the mucous membrane, and find that the lymphatics which correspond with these ulcerations are in a state of manifest disease. Lastly, it has been observed, that the best treatment for tabes mesenterica, is that which is calculated to remove enteric inflammation, and that the old treatment, founded on the principle of removing obstruction by the use of alkalies, absorbents, and solvents, is erroneous and false in the majority of cases. So that we have proof of the origin of this disease in intestinal inflammation, drawn from the occurrence of analogous affections in the adult, from the phenomena of the disease in its early stage, from morbid anatomy and from treatment. I think there can be no doubt that in most instances it commences by intestinal inflammation. Of course a predisposition to disease of the glandular system will favor the occurrence. But is there no case in which the disease has commenced in the glands, and where the mucous membrane of the digestive tube is secondarily engaged? My answer to this question is, in a few cases we cannot prove that the disease commenced in the mucous membrane, and there is no reason why the glands of the mesentery should not be liable to primary tuberculous or scrofulous deposition as well as those of any other part of the body; but, in a vast number of instances, the enlargement of the mesenteric glands is secondary, and resembles the inflammation of the inguinal glands which results from chancre on the penis. I would advise you to consult the Commentaries on Pathological Propositions by Broussais. On this subject, also, Dr. Mackintosh's Practice of Physic.

There is one thing more connected with this disease, which is of considerable importance, and to which I will briefly draw your attention, and this is, that this inflammation of the glands of Peyer and Brunner, this *dothin-enteritis*, as it has been called, is a very common cause of slow convalescence in fever. You will meet with cases of fever which will go on to the 17th or 21st day, and then something like a crisis takes place; you expect that from this time forward the patient will get progressively better, but in the course of a few days you will be surprised to find no amendment, and that he is not gaining strength; you feel his pulse, and find it quick and small, his attendant informs you that he is restless at night, and when you ask him how he feels, he says he has no particular complaint, but that he is very weak, gets no sleep at night, and has no appetite. Under these circumstances you are anxious to find out what his disease is: you inquire into the state of the heart, lungs, and brain; you find no evidence of disease in any of these organs; you run over in your mind the symptoms present, the feverishness, quick pulse, want of appetite, restlessness, and finding some degree of abdominal tenderness and tympanitic swelling, you arrive at the conclusion, that the return of health and strength is impeded and delayed by the existence of a dothin-enteritis. The first person who discovered this fact was Dr. Cheyne. "In these

cases," says he, "the distress of the patient often bore no proportion to the danger he was in; the former was very little, while the latter was extreme. The disease would proceed without violent symptoms; nay, a patient would seem to be recovering, although without any critical discharge; he would call for full or middle diet, and for days take his food regularly. The only circumstance in his situation which demanded attention was that he regained neither flesh nor strength, and he expressed no desire to leave his bed. Then, his pulse again became quick and his tongue dry; and he would complain of dull pain and uneasiness in his belly, attended with soreness on pressure, and a degree of fullness in the upper part of the abdomen. Then came on a loose state of the bowels and great weakness. Probably at the next visit the patient was lying on his back, with a pale, sunken countenance, and a very quick pulse; his mind without energy. Then his stools, (mucous,) passed from him in bed, and the urine also. Perhaps a hiccup came on; next his breathing became frequent, in which case death was at no great distance." In all these cases the mucous membrane and glands were found in a state of decided disease.

Now, what was the nature of this disease? It came on as a secondary affection during the course of fever, became more marked and intense, and finally destroyed the patient. I have seen very many cases of this disease. I give you this as a general rule:—when, after the apparent termination of a fever, your patient convalesces very slowly and imperfectly; when you find that he is becoming weak, that his pulse is quick, his belly tympanitic, his thirst still present, *and all this without evidence of disease in the respiratory, circulating, or nervous system*, you may suspect inflammation of the mucous glands of the digestive tube, which may terminate in deep ulcerations; and you will not be surprised if your patient should be carried off by rapid peritonitis, occasioned by an ulceration of all the coats of the intestine. I have witnessed many instances of the truth of this statement.

It has been objected to the doctrine that infantile remittent fever and tabes mesenterica depend on inflammation of the mucous membrane of the digestive tube, because it has been found that purgatives are sometimes useful in the treatment of the disease; and those who bring forward this objection ask, "if purgatives give relief, how can it be intestinal inflammation?" Now, what are the real facts of the case? These cases, which have been relieved by purgatives, are cases in which purgative medicine has been given in the early stage, and has been productive of benefit; or, in other words, where the disease is only just commencing, and where its cause is proved to be the presence of irritating matter in the bowels. A physician is called to a case of this kind; he gives a purgative; a quantity of offending matter is evacuated, and the child gets better. You should act in the very same way, and have recourse to purgatives whenever you have reason to suspect the existence of irritating or indigestible matter in the bowels. You are to employ purgatives on the same principle as every one employs emetics, in cases where corrosive poison has been swallowed; but no one is inclined to think that he will be able

I have told you that dysentery is an inflammatory affection of the great intestine, and all the symptoms during life, as well as the phenomena revealed by dissection, tend to confirm this view of the subject. We often have fever because the constitution sympathizes with the inflammation of an important organ; we have excessive pain and irritation of the intestine, in consequence of its muscular fibres being involved in the inflammation; and we have discharges of morbid, purulent and bloody secretion. You will now please to inspect this preparation and hand it round. See the effects of dysentery—the extensive inflammation, ulceration, and sloughing of the mucous membrane. Here is another preparation, you perceive the whole surface of the colon is covered with coagulable lymph, which, in some cases, forms a chief part of the dejections. Here is a preparation which exhibits extensive sloughing of the mucous membrane; its tissue, you see, is quite abraded and destroyed. Here is a preparation of chronic dysentery, which presents a very curious appearance; the mucous membrane is finely mammilated, as it were, and it is stated on the label, that the process of cicatrization was going on. If you compare it with the others. You will find a remarkable difference. Here is another specimen of dysenteric destruction.

Here, then, is a disease in which we have violent inflammation of the mucous membrane and submucous cellular tissue, and, in severe cases I believe, of all the coats of the great intestine, except the serus. Let us rehearse its symptoms briefly. Fever of an inflammatory or typhoid character, great pain and excessive irritability of the great intestine, morbid discharges of purulent, bloody, and lymphy matter, twisting pains called *tormina*, and frequently the absence of fæcal matter in the dejections.—*Ibid.*—*Ibid.*

19. *On the External Use of Croton Oil.*—This valuable drug was first made known to the profession by Dr. Connwell, in 1820, and subsequently its therapeutic effects were investigated by MM. Recamier, Bally, and Majendie; their researches were, however, limited to its internal exhibition, and it was not until 1831 and 1832 that its great value, as a counter-irritant to the skin, was clearly proved by Professor Andral.

External Use. With one or two fingers, or, if we choose, with a dossil of lint, wetted with the oil, we continue rubbing the skin for the space of about ten minutes. This operation should never be entrusted to the patient himself—in two cases at the Hopital de la Pitié, we observed violent ophthalmia and inflammation of the penis and scrotum induced, no doubt in consequence of the mere inadvertently carrying their fingers to their eyes and genital organs.

The eruption which is brought out by the external use of the croton oil, may be divided into five stages:—1. Rubefaction of the skin—2. Formation of vesicles—3. Conversion of the vesicles into pustules—4. Desiccation of the pustules—5. Desquamation and falling off of the crusts.

These different periods or stages are not uniformly to be observed; they are most conspicuous when the friction has been made with ten

to cure the disease by the continued use of emetics. But unfortunately, persons do not attend to the actual state of the digestive tube; they go on prescribing purgative after purgative, until the irritation, which was originally produced only by indigestible matter, becomes exacerbated, and terminates in ulceration of the intestinal mucous surface, accompanied by all the symptoms of tabes mesenterica.—*Ibid.*—*Ibid.*

17. *Diseases of the Large Intestines.* By William Stokes, M. D.—You will see in the various systematic treatises on the practice of physic, separate descriptions of the affections of this portion of the digestive tube, you will find diarrhœa in one chapter and dysentery in another, and you will observe that a great deal of ingenuity has been expended in forming nosological differences between these affections. I fear that much of what has been written respecting them is rather calculated to puzzle and mislead than to inform the student. Viewed anatomically there is no essential difference. You may for every practical purpose place them in the same class, and consider them as the result of the same morbid condition of the same part, namely, an inflammation of the lower portion of the digestive tube. Some persons may quarrel with the term inflammation,—call it then irritation if you please, but the truth is, that it is disease of the lower portion of the intestine, the results of which are increased sensibility and altered secretion, and this description, I think, will fairly apply to one as well as the other. If a man has purging with fever and pain it is called dysentery, if he has purging without pain, and without any manifest febrile excitement, we call it diarrhœa. But in cases where persons have died, after having labored under diarrhœa for a length of time, we *generally* find, on dissection, lesions of the mucous membrane of the intestinal canal, sufficient to account for death. There are some cases indeed, in which the mucous surface takes on a gleety discharge, similar to that which follows gonorrhœa, and under such circumstances you will not be able to discover any distinct anatomical evidence of diseases. These, however, are comparatively rare, and bear little or no proportion to those cases which present distinct traces of organic lesion.—*Ibid. March 1st*, 1834.—*Ibid.*

18. *On Dysentery.* By William Stokes, M. D.—The first principle I have to enforce on this subject—and you may take it as an observation based on the soundest pathology—is this, that dysentery is inflammation of the large intestine. In some cases it is complicated with fever, and in others with disease in the upper portion of the digestive tube and I believe that those cases, which are termed *epidemic dysentery*, are those in which this disease is combined with typhus fever, or with an extensive affection of the small intestine—where there is ileitis as well as colitis. I shall not take up your time with discussions respecting epidemic dysenteries, or those of warm climates; it will be sufficient for the present to allude to that form of disease which is observed in this country.

of the oil were rubbed along the whole course of the affected nerve. Next morning the outer side of the leg was much reddened, and vesicles had formed over the trochanters. On the 11th, ten drops more were rubbed in between the trochanters. 12th. The eruption considerable—some large papulæ had appeared over the fibula. The neuralgic pain almost gone—only the heat and itchiness of the eruption are troublesome. He left the hospital in a few days quite well.

Case II.—*Sciatica*. A man, aged 50, entered the La Pitié Hospital in December, 1831, suffering from sciatica of six weeks' standing. Twelve drops of croton oil were well rubbed in between the trochanters, along the outside of the thigh, to the lower third of the leg; a copious eruption was induced, and already, upon the second day, the patient felt relieved. In six days more he was considered cured, and left the hospital, quite delighted with the rapidity of his cure.

He had experienced two severe attacks before—once in 1812, when he was treated in the Hotel-Dieu, by M. Recamier, with the essence of turpentine—at that time he was six weeks in the hospital; and again, two years ago, after exposure to wet and fatigue, he was admitted into the Hopital de la Charité, under the care of M. Fouquier, who employed blisters and friction, with anodyne balsam. He was cured then in three weeks.

Case III.—*Sciatica*. A stout, plethoric man, forty-five years of age, had for about a month felt general indisposition, frequently-returning shiverings; and neuralgic pain of the left extremity. He was taken into the La Charité Hospital, and there treated by M. Rayer with repeated venesection, the application of fifty leeches to the hip, and forty more to the back of the thigh. The essence of turpentine was administered inwardly in frequent doses; and besides all this the vapour-bath was used fourteen times. This treatment was continued for three weeks, and as little benefit had been obtained, the patient left the hospital, and a few days subsequently entered the La Pitié. At that time the pain extended from the ischium down the ankle-joint, and it was increased by walking, and by the heat of the bed: the lower part of the leg was annoyed by a feeling of formication. The digestive organs were in good order. Fifteen drops of croton oil were rubbed in over the origin of the sciatic nerve. On the following day, twenty drops more were rubbed over the tract of the affected nerve; a vesicular eruption made its appearance, and the neuralgic pain was already diminished. On the 29th, (third day,) twenty drops were again ordered. 30th. The eruption is very abundant—the vesicles have changed into large pustules. The patient complains only of the itching; the pain is gone. He remained a few days longer in the hospital, until the crusts separated; and, on the 12th day after his admission, he was discharged cured.

A case of chronic rheumatism of the shoulder-joint, supervening on typhus fever, is given, in which general and local bleeding, blisters, &c. had been fruitlessly used for the space of six weeks. The friction with a few drops of croton oil was employed twice; and on the third day the patient could move his arm—although not entirely cured, he was very much relieved when he left the hospital.

or twelve drops of the oil, on a part of the skin where there is much subjacent cellular tissue. The patient at first experiences a tingling warmth, which is quickly followed by a considerable redness, extending an inch or so beyond the sphere of the rubbing. These appearances are generally noticed within seven or eight hours, sometimes in one or two, at other times not for ten or twelve hours; the differences of time required depending, no doubt, on the delicacy of the skin. In from fourteen to twenty-six hours, myriads of small, close-set vesicles make their appearance upon the inflamed skin. Occasionally, a few of the vesicles become greatly magnified, forming true phlyctenæ, filled with a turbid lymph, which speedily change into a purulent matter. In twelve out of thirty-one cases reported by our author, the vesicles passed to desquamation without undergoing the suppurative process.

The usual period at which the serum becomes puriform, is from thirty-six to fifty-four hours after the application of the oil. In one or two days subsequently, the pus begins to exude, and forms grayish crusts over the pustules, and the desquamation is generally over by the eighth or ninth day. If the croton oil is rubbed upon any part which has been recently vesicated, the eruption is, as we might expect, more speedy and abundant.

In six cases it was tried whether the rubbing in of the croton oil, mixed with an equal quantity, or rather more, of that of almond oil, over the arch of the colon, would produce any purgative effects;—an eruption, which reached the second stage, was brought out, but the action of the bowels was not affected. Similar results were obtained when the pure oil, to the amount of twenty drops, was rubbed round the umbilicus. Dr. Rayer states that he has repeatedly induced free action of the bowels by putting two or three drops of the oil upon a surface denuded of its epidermis by a blister. We have not repeated this experiment.

Therapeutic Effects. The diseases in which the external use of this remedy has been employed with most advantage, are chronic rheumatism, arthritic pains, pleurodynia, paralysis, stomatitis, laryngitis, and chronic gastritis.

Case I.—*Sciatica.* A man, aged 48, was admitted into the Hopital de la Pitié on the 6th December, 1831. For five months preceding he had suffered severely from pain, beginning in his right hip, and extending down the back of the limb, along the course of the sciatic nerve to the outside of the leg. For two months and a half he was obliged to keep the house, upon then attempting to resume his work, the pain returned with all its former intensity. He attributed his complaints to exposure to wet and cold. The only treatment which had been followed before his admission was blistering the limb; but he had derived no benefit. When examined in the hospital, the pain was found to be increased by pressure, and by the heat of the bed; he complained of headache, but in other respects his general health was not amiss. Eight drops of croton oil were ordered to be rubbed in over the origin of the sciatic nerve. This produced considerable itching and redness, but no vesicles; and the pain being not relieved, eighteen drops

Case IV.—*Anæsthesia, or Paralysis of Feeling.* Pierre Dumas was admitted into the Hopital de la Pitié on the 9th of Novembre, 1831. Seven months before he had an attack of erysipelas of the face, and the inflammation had extended down the left side of the neck. Three weeks after his recovery from this illness, he was suddenly seized with dimness of sight and stunning noises in his ear; these symptoms were not constant, but came and went, returning every second or third day.

This state of things lasted for about two months, during which nothing had been done in the way of medical treatment; and then there supervened a general numbness of the whole left side of the face, and the sight of the left eye became affected at the same time—the left nostril lost the sense of smell, and the left side of the mouth its sense of taste. When he was shaving, he felt as if some foreign body was placed upon his cheek; and, in chewing, the food seemed like earth in his mouth. He complained of a very severe frontal cephalalgia—the tongue was loaded, the abdomen soft, the bowels rather relaxed, pulse 90, breathing not affected. He was ordered to be largely bled from the arm—to use a mustard-bath to the feet at night, and to be put on a light emollient diet.

10*th*. No relief; half a drop of croton oil in two pills at bed-time.

11*th*. Twenty liquid stools from the pills; head-ache much better; paralysis not affected. Eight drops of the oil to be rubbed upon the left cheek and side of the neck.

On the following day the skin was well reddened, and a large crop of confluent vesicles had made their appearance; to our great surprise he had already recovered his sight, taste, smell, and feeling. The fifth period of the eruption, or that of desquamation, was not over until the thirteenth day. He did not leave the hospital till the 12th December, having had a threatening of a relapse of the numbness in a slight degree; but this was checked by a bleeding from the foot.

Case. V.—*Angina Laryngea—Aphonia.* An itinerant singer of the streets of Paris, presented, upon his admission, the following symptoms; a frequent, dry, and harsh cough; pain over the larynx, increased by swallowing; breathing sibilant; voice almost entirely gone, so that he could not make himself understood. Upon examining his throat, the velum and its pillars were observed red and swollen. Venesection, a sinipised foot-bath, and emollient drinks ordered. The following day he was much better; the general symtpoms were relieved; but the aphonia was as complete as before. Ten drops of croton oil to be rubbed on the front of the neck. In twenty-four hours there was a copious confluent eruption, the voice was regained, and the deglutition more easy. He left the hospital three days afterwards quite cured.

Case VI.—*Diptherite, or Stomatitis pseudo-membranacea.* An old soldier, upwards of sixty years of age, exhibited a specimen of this disease to our notice in the Hopital de la Pitié. It had already existed for eight days, and had made considerable progress; the inside of the mouth and the surface of the tongue being covered every here and there with small oblong crusts, or laminæ of a grayish-white colour, set upon red, inflamed, and swollen bases; the submaxillary glands

were painful and enlarged; the breath excessively fœtid, the lips swelled and of a purple hue; and the deglutition very difficult. Sixty leeches had been applied at two different times behind the jaws; and poultices and a multitude of gargles had been used without much good for the poor patient, who could scarcely articulate a word. Eight drops of croton oil were ordered to be rubbed in upon the sides of the neck. On the morrow a copious eruption of vesicles had appeared, and considerable relief was already experienced. From this peroid the disease appeared to have undergone a favourable change, and in fifteen days more, under the use of acid gargles and of poultices, it was altogether removed.—*Archives Gén. Aug.* 1833, *and Med. Chir. Rev. July.* 1834.—*Am. Journ. of the Med. Sciences.*

20. *On the Use of Soot in Diseases of the Eyes.*—The *Gazette Médicale*, for January, 1831, contains some facts collected by M. Carron-du-Villards favourable to the use of soot in diseases of the eyes. M. Baudelocque, physician to the Hopital des Enfans, has also extolled this article in scrofulous ophthalmia. The following is the formula of the first named practitioner:—Soot, ʒij.; dissolve in boiling water, filter and evaporate to dryness. The residue, which is very brilliant, is to be dissolved in boiling very strong white vinegar, with the addition of 24 grs. extract of roses to ʒxij. of liquid. Some drops of this solution in a glass of water form a good resolvent collyrium. M. Carron-du-Villards recommends granulations of the cornea to be touched with a very fine brush wet with the following mixture.—Take of Opium, ʒij.; Cloves, ʒj.; Washed soot, ʒiv., Cinnamon water, ʒviij.; Alcohol, ʒiv. To be digested for six days in a warm place, and then expressed and filtered.—*Bulletin Général de Therapeutique, March*, 1834. —*Am. Journ. of the Med. Sciences.*

21. *Successful Treatment of Disunited Fracture by the Tourniquet.* —In a case of disunited fracture of the femur of twenty-one weeks' standing, and which resisted all the ordinary means of procuring union, has been successfully treated in St. Bartholomew's Hospital by the application of tourniquets lightly round the fractured part of the limb. The patient was middle-aged, and in the enjoyment of excellent health.—*Lond. Med. and Surg. Jour. Sept. 28th.* 1833.—*Am. Jour. of the Med. Sciences.*

22. *Luxations of the Humerus.*—M. Gerard recommends the following method for the reduction of luxations of the humerus. He states, that he has employed it successfully in every case, (eight cases,) in which he has resorted to it, of luxation of the humerus downwards, and more or less forwards or backwards. The patient being seated on a chair, an assistant placed on the uninjured side, passes his arm around the neck of the patient, and with his two hands crossed upon the dislocated shoulder, produces counter-extension. The operator placed on the injured side, raises the limb from the body, flexes the forearm on the arm, holds it, or has it held against the chest of the patient, and

placing his left forearm under the upper portion of the luxated bone, as near as possible to the axilla, he flexes this forearm by pressing it against the patient, so that the cubital extremity of the luxated humerus is supported upon the side of the operator, who then exerts upon the luxated part a single traction, which suffices to effect reduction by replacing the head of the humerus in the glenoid cavity. It is essential to retain the inferior extremity of the luxated bone, firmly supported against the side, and as near as possible to that of the patient. In ordinary circumstances, a common man need not exert more than one-third of his strength to effect reduction, which is accomplished by a single effort, and without the patient having time to complain.—*Jour. Hebdomadaire, II.* 126, 1834.—*Am. Journ. of the Med. Scien.*

23. *Injections of Cold Water into the Umbilical Cord to Promote the Separation of the Placenta.*—Professor Houel states that this method, first recommended by M. Mojon, will often succeed perfectly if it be used sufficiently early, and provided the vein does not contain too much blood; for sometimes cases occur in which it is not possible to dislodge the blood which the vein contains. One injection will frequently suffice. If we listen with the stethoscope over the region of the womb, where the placenta is attached, while a quantity of water is injected into the cord, a noise or rhonchus coming as if from a distance is heard; this noise is quite distinct from that of any pulsation. In favourable cases this sound becomes louder and stronger, and in addition to it, other rhonchi of a more sibilant or whistling character becomes audible. Professor H. states, that he never could hear any of these last described sounds in cases in which the placenta remained obstinately attached; they would therefore seem to be connected with the contractions of the uterus. These contractions are necessarily very imperfect, when the placenta remains fixed; and hence perhaps the absence of the sounds in these cases. Professor H. recommends that the injection of the cord be used even when it does not succeed of itself, and when therefore it is necessary to remove the placenta by manual assistance, it may be a serviceable adjunct.

The most frequent cause of failure with the injections alone, is spasmodic contraction of the uterus.—*Med. Chir. Rev.* from *Allgemeine Medic. Zeitung.*—*Am. Jour. of the Med. Sciences.*

24. *Ointment to allay the Irritation of Hæmorrhoidal Tumours.*—The following ointment is recommended by Dr. Geddings in our esteemed cotemporary, the *North American Archives of Medical and Surgical Sciences*, No. 1, as affording great relief to the irritation of hæmorrhoidal tumours:—℞. Pulv. carb. plumbi. ʒss.; sulph. morph. gr. xv.; ung. stramon. ʒj.; ol. olivar. q. s. Ft. ung. part. applicand.

Powdered opium to the amount of a drachm may be substituted for the morphia, and if the dry white lead is not at hand, that which is ground in oil for the use of painters may be advantageously substituted. Sometimes a drachm of powdered galls may be added.—*Am. Journ. of the Med. Sciences.*

II.—ORIGINAL.

The Western Journal.

E Sylvas Nuncius.

CINCINNATI, JANUARY, 1835.

I. OUR DELAY.

The delay of a month in the publication of this number, requires an explanation if not an apology. Let us to it then. Well, in two of our preceding numbers, we announced that on the 5th of January, 1835, our brethren of Ohio, were to hold, in the Capitol, a great Convention, and, very naturally concluding, that it would do and say many good things, we felt anxious to give utterance to them, through our quarterly, at the earliest convenient period, and so we kept open our editorial department, that we might publish an abstract of the proceedings. An abstract was all that we at first intended; but as the Convention exerted itself on but few subjects, which are not of general interest, we have thought it would, on the whole, be more acceptable to our readers, to give the journal entire, which we do, accordingly, in the next article. It is printed from proof sheets of the pamphlet about to be issued

by Drs. Parsons, Rives and Reed, the publishing committee of the Convention, who have obligingly favoured us with the means of making this early report of its proceedings.

Art. II.—Medical Convention of Ohio.

Pursuant to a circular letter, addressed to "all Scientific Practitioners of Medicine and Surgery in the State of Ohio," recommending a General Medical Convention to be held in the city of Columbus, on the 5th day of January, A. D. 1835, for the purposes therein mentioned and expressed, the following persons assembled in the basement room of the Presbyterian church, in said city, on the day and year aforesaid, at 10 o'clock, A. M., to wit:

Doctor Thomas Earl, of the county of *Portage*.

Doctors Robt. McNiell, M. Z. Kreider, ——— Anderson, John Dougherty, and A. A. Frisbee, of the county of *Fairfield*.

Doctors Samuel Parsons, W. M. Awl, P. Sisson, M. B. Wright, Robt. Thompson, N. Miller, —— Robinson, C. H. Wetmore, Geo. Snow, Kingsly Ray, J. Clark, B. F. Gard, and N. Boalse, of the county of *Franklin*.

Doctors Peter Allen, and Jared Potter Kirtland, of the county of *Trumbull*.

Doctor G. W. Woolley, of the county of *Huron*.

Doctor John Cook, of the county of *Jefferson*.

Doctor Robert Houston, of the county of *Clarke*.

Doctors James Ewing, H. M. Thrall, William Bancroft, Geo. W. Landon, —— Tracy, and —— Scott, of the county of *Licking*.

Doctors D. W. Rhodes, A. H. Brown, L. P. Blocksom, James Helmick, Wm. F. Coleman, John A. Turner, Robt. Safford, and Geo. W. Moorhead, of the county of *Muskingum*.

Doctor P. B. Johnson, of the county of *Morgan*.

Doctors Wm. Trevitt, and Philip Harvey, of the county of *Perry*.

Doctors J. B. Thompson, and I. O'Ferrall, of county *Guernsey*.

Doctor J. M. Dillon, of the county of *Monroe*.

Doctor Joshua Martin, of the county of *Greene*.

Doctor Edwin W. Smith, of the county of *Montgomery*.

Doctor J. Parker, of the county of *Preble*.

Doctors George Keefer, Asa Coleman, John O'Ferrall, and —— Hamilton, of the county of *Miami*.

Doctors Daniel Drake, Thos. D. Mitchell, John Eberle, Robert P Simmons, L. C. Rives, Silas Reed, Charles R. Cooper, and William Mount, of the county of *Hamilton*.

Doctor L. A. Hendrick, and Wm. Doane, of the county of *Clermont*.

Doctors Wm. M. Charters, Wm. Harvey, and Isaac Fisher, of the county of *Warren*.

Doctor James Moore, of the county of *Ross*.

Doctor Jacob Kirby, of the county of *Highland*.

Doctor Jacob Dewees, of the county of *Putnam*.

Doctors Thomas H. Gibson, and B. S. Olds, of the county of *Pickaway*.

Doctors C. Ankhelen, and —— Tólland, of the county of *Madison*.

Doctor Carnell, of the county of *Delaware*.

The meeting was organized by calling Doctor McNiell to the Chair, and appointing Doctors Awl and Kreider Secretaries pro tempore.

Whereupon, the circular of last June, calling the Convention, was read by its author, Dr. Wm. M. Awl, as follows:

To all Scientific Practitioners of Medicine and Surgery in the State of Ohio.

The undersigned, uniting in sentiment and feeling with that portion of the Profession who view, with pain, the great depression of character—want of harmony and concentration of useful action, which unhappily prevail in the Medical Science—acknowledging, also, a proper responsibility for the advancement of correct principles, the promotion of public benevolence, and the common welfare of society,—are induced most respectfully to recommend and consent to support a call for the assemblage of a General Medical Convention, to be holden in the city of Columbus, on Monday, the 5th of January, A. D. 1835.

The grand design is to organize for practical utility, the whole scientific medical power of the State. All regular scientific Practitioners of Medicine and Surgery, either of city, village, or country, who are disposed to advance the honor and dignity of the Profession;—every one who has a heart in the cause of science, and is ready to unite with the great and good of the age, in elevating the moral and scientific character and talent of the great and extending West, is cordially invited, and expected to come and record his name in this Convention.

The regulation of professional etiquette—The construction of independent Medical Societies—The support of a periodical Journal of Practical Medicine—The erection and location of public Asylums, for the reception of Lunatics and the instruction of the Blind—The promotion of the Temperance cause—The regulation of Vaccination—The convenient supply of the Leech:—

And many other subjects will, perhaps, claim the attention of the Convention. But as the whole proceeding should be an independent and voluntary offering for the common good, all are expected to be unpledged, and none should come entirely unprepared.

On motion of Dr. R. Thompson,

Resolved, That a Committee of six be appointed, to nominate the officers of the Convention.

Whereupon, the Chair appointed Doctors Robert Thompson, Saml. Parsons, D. W. Rhodes, Silas Reed, M. B. Wright, and J. A. Parker, said committee.

Doctor Wetmore offered the following resolution:

Resolved, That a Committee of three persons be appointed, to inquire into the rights of individuals to membership in this Convention, —which was, on motion of Dr. Rhodes, indefinitely postponed.

On motion of Dr. Mount,

Resolved, That the vote so taken for indefinite postponement be reconsidered, and the aforesaid resolution, offered by Dr. Wetmore, was adopted unanimously. Whereupon the Chair appointed Doctors Cooper, Eberle, and Rives, said committee.

The Chair announced an invitation from Charles Anthony, Esq., one of the Directors of the Ohio Penitentiary, to visit that institution, at 2 o'clock, P. M. of this day, which communication was ordered to be filed, and the invitation accepted.

Dr. Thompson, from the committee appointed to nominate officers, reported the names of the following gentlemen, as officers of the Convention, to wit:

For President, PETER ALLEN, of Trumbull Co.
1st *Vice President*, L. C. RIVES, Hamilton.
2d " ROBT. MCNIELL, Fairfield.
3d " J. A. PARKER, Preble.
4th " D. W. RHODES, Muskingum.
5th " J. P. KIRTLAND, Trumbull.
6th " JACOB KIRBY, Highland,
Corresponding Secretary, WM. M. AWL, Franklin.
Recording Secretary, M. Z. KREIDER, Fairfield.
Treasurer, M. B. WRIGHT, Franklin.

Which Report was, on motion, adopted.

Dr. Cooper, from the committee on the subject of the 'rights of membership,' reported as follows, to wit:

"Your committee, appointed to inquire into the rights of individuals to membership, in this Convention, *Report*—That the obligations the Convention owe to the profession, require it of them that in order that an individual shall be entitled to a seat in this body, he shall have been a regular student of medicine, under the direction of a respectable and qualified physician, and that all disciples of 'Botanic' or 'Thompsonian' systems of practice, be excluded from all participa-

tion in the deliberations of this Convention." Which report was agreed to.

On motion of Dr. Drake,

Resolved, That the committees on all the great subjects introduced for discussion into this Convention, shall be appointed by the President, assisted by the Vice Presidents.

On motion of Dr. Drake,

Resolved, That a committee of five members be appointed to draft a report and resolutions on the subject of Commercial Hospitals in the Valleys of the Mississippi and the Lakes, to be erected by the General Government Whereupon, Doctors Drake, Brown, Earl, Cook, and Kirtland, were appointed said committee.

On motion of Dr. Kreider,

Resolved, That a committee of three members be appointed to report upon the expediency of memorializing the Legislature on the subject of legalizing the study of Anatomy. Whereupon, Doctors Kreider, Mitchell, and Cooper, were appointed said committee.

On motion of Dr. Rives,

Resolved, That a committee of four be appointed, to inquire into and report upon the means of improving the state of Medical Education in Ohio. Whereupon, Doctors Rives, Drake, Awl, and Reed, were appointed said committee.

On motion of Dr. Coleman,

Resolved, That a committee of three members be appointed to prepare a report on the subject of Vaccination. Whereupon, Doctors Colemar, Hamilton, and Woolley were appointed said committee.

On motion of Dr. R. Thompson,

Resolved, That a committee of five be appointed to inquire into the expediency of memorializing the Legislature of Ohio upon the subject of a Lunatic Asylum, and make report thereon. Whereupon, Doctors Thompson, Smith, Awl, Eberle, and Mitchell, were appointed said committee.

On motion of Dr. Drake,

Resolved, That a committee of three members be appointed to prepare a report and resolutions on the subject of a School for the Education of the Blind, to be established by the Legislature of Ohio, in the city of Columbus. Whereupon, Doctors Drake, Rhodes, and Parsons were appointed said committee.

On motion of Dr. McNeill,

Resolved, That a committee of three be appointed, to inquire into the expediency of memorializing the Legislature on the subject of a law regulating the practice of medicine. Whereupon, Doctors McNeill, Parsons, and Martin, were appointed said committee.

On motion of Dr. Wetmore,

Resolved, That a committee of three be appointed to prepare a report to be presented to this Society, on the subject of Intemperance, in conformity with the views of the circular. Whereupon, Doctors Wetmore, Awl, and Kreider, were appointed said committee.

On motion of Dr. Kirtland,

Resolved, That a committee of three members be appointed to report to this meeting a system of medical Ethics. Whereupon, Doctors Kirtland, Eberle, and Reed, were appointed said committee.

On motion of Dr. Awl,

Resolved, That a committee of three be appointed, to report on the support of a practical Journal of Medicine, suited to the wants of the profession in the West. Whereupon, Doctors Awl, Eberle, and McNiell, were appointed said committeee.

On motion of Dr. Wright,

Resolved, That a committee of three be appointed to report to this meeting upon the convenient supply of the *Leech*. Whereupon, Doctors Wright, Awl, and Cook, were appointed said committee.

The Chair then read a communication from a committee of the Ohio State Temperance Society, requesting the Convention to appoint a member thereof to deliver an Address before that Society, at such time as shall be convenient. Whereupon, Doctor Mitchell was selected by the Chair to perform that duty.

On motion, the Convention adjourned until 9 o'clock, A. M. tomorrow, to meet in the court room of the Circuit Court.

Court Room, Jan. 6, 1835,—9 *o'clock, A. M.*

The Convention met pursuant to adjournment. The President in the Chair. The minutes of yesterday were read and adopted.

Dr. Cooper submitted the following:

"That the diffusion of knowledge on the instruction of the Blind, is, in the estimation of this Convention, of paramount importance—that the great, the good, and the philanthropic of the age, have enlisted in the promotion of this noble cause—and that we are called upon by every feeling which dignifies our nature, by every consideration worthy of the mind of man, and by every benevolent impulse of the heart, to lend our aid and influence in the furtherance of this great object—therefore,

"*Resolved*, That Dr. Daniel Drake be requested to deliver an address on the subject of the Instruction of the Blind, to-morrow (Wednesday) evening, at half past 6 o'clock, and that both Houses of the Legislature of Ohio be respectfully invited to attend." Which resolution was adopted.

Dr. DRAKE, from the committee to whom was referred the subject of Western Commercial Hospitals, made the following

REPORT:

The necessity for Hospitals in the Valleys of the Mississippi and the Lakes, for the relief of those engaged in our commerce, and also, of travellers, had been perceived from the infancy of the Western settlements; but it was left for a benevolent physician, of the State of Missouri, Dr. CORNELIUS CAMPBELL, of St. Louis, to set on foot the project of urging the General Government to establish them. The Committee have given to this subject the serious attention which its importance demands, and have come, unanimously, to the conclusion, that it should be earnestly and respectfully pressed on the attention of Congress.

In presenting their views to the Convention, they begin, first, by a reference to the geographical extent of the region, which is immediately interested in the object. Its area is greater than that of the remainder of the Union—embracing large and populous portions of New York, Pennsylvania and Virginia, a part of Alabama, most of Mississippi, and the whole of Louisiana, Tennessee, Kentucky, Ohio, Indiana, Illinois, and Missouri, with the Territories of Arkansas and Michigan. Regarding the last, as entitled by its population to admission into the Union, the number of States embraced in the region for which the Hospitals are intended, is equal to the original thirteen. Their population is already more than one-third of that of the whole Union, and is rapidly increasing. The lake navigation, carried on by means of schooners and steamboats, extends from Buffaloe, in New York, at the eastern end of lake Erie, to Chicago, on the south western shore of lake Michigan, in Illinois, a distance of more than 1000 miles. The rivers of the Lakes and of the Missisippi Valley, which are already navigable with flats, keels, and steamboats, may be estimated at 6,000—making an aggregate of 7,000 miles.

Secondly. The extent of this navigation necessarily includes a great variety of latitudes, with voyages so distant, as to subject those who are engaged in our commerce, to the influence of different, and to them unhealthy climates; while the banks of all the navigable waters, like those of every new country, send forth insalubrious exhalations. From the combined action of these causes, no inland navigation, in the temperate zone is, perhaps, more unhealthy. The ascending steamboat voyage, every year, brings up the Mississippi and its tributaries, a great number of deck passengers, chiefly the sons

of farmers, of whom many die on board; but the number that perish in the long and sickly descending voyages of the flat bottomed boats, which often depart from the upper waters in summer and early autumn, when they are low and their shores unhealthy, must be still greater. Nothing is more common than for two out of the five hands, who generally manage one of these boats, to die; and it has even happened, that the whole have perished, and the boat with its cargo been left deserted, to be lost.

Third. Your committee have found it impossible to make an accurate estimate of the number of persons engaged in the lake and river trade. The Mississippi and its tributary streams, have, at the present time, about 250 steamboats in commission. The average number of persons engaged in navigating them, as your committee have been informed by experienced steamboat commanders, may be stated at 22, giving a total of 5,500. The number of flat bottomed boats which float down the Mississippi is quite unknown. Several years ago it was ascertained that 10,000 arrived in a single year at New Orleans. At Memphis, in Tennessee, below the mouth of the Ohio, it was estimated, that in 1833, 5,000 passed down. Your committee, believing that the multiplication of steamboats has diminished the number of flats, incline to the latter estimate, and will assume 6,000, which, at an average of four and a half hands for each boat, will give 27,000. In addition, the coal, salt, and lumber trade of the Ohio, and the fur trade of the Missouri, may give 7,500, making a sum total for the trade on the southern or Gulf declivity of the West, of 40,000. The number of steamboats on the lakes is about 35, averaging, from their size, 28 hands, amounting in round numbers to 1,000. The schooners, sloops and brigs, on the same waters, are not less than 250, having six hands to each, and giving 1,500; to which may be added, 500 for the Erie and Ohio canal, giving an aggregate for the lakes of 3,000; which, added to the previous sum, gives a grand total of 43,000. It appears, from the foreign and coasting marine tonnage of the United States, in 1832, that allowing a seamen for every 20 tons, the whole number was about 63,000. Thus the number of persons employed in the commerce of the West, is more than two-thirds of the number engaged in the maritime commerce of the Union.

The boatmen, are, however, but a part, and not the larger part, of those who navigate the Western waters. The commercial and social relations of the North and the South, and the practice of escaping from the latter to the former at the opening of summer, throngs our steamboats with passengers, many of whom fall sick and die on the voyage.

Fourth. The necessity of numerous hospitals for the reception of the sick, and those who suffer from steamboat explosions and other casualties, cannot fail to be perceived and admitted, by all who may be induced to view the subject as your committee have seen it. From the absence of such hospitals, at short intervals, many valuable lives have been lost, that might have been preserved, if *timely* aid had been administered. This is sometimes done, by the skill and humanity of steamboat commanders; but the flat boats are, generally, unprovided with the requisite medicines, and on board of both, it is not uncommon for persons to sicken and die, without medical assistance; the boat still keeping on her way, and only stopping to deposit the remains of the deceased, in some new village, or underneath the trees of the forest.

Fifth. Your committee are not prepared to speak definitively of the number and locality of the hospitals, which an extension of the trade of the West will ultimately require; nor even to point out with precision the points, where, at this time, they are most needed; but they venture to indicate the following, as the places where they are now wanted: New Orleans, Natchez, Memphis, St. Louis, Louisville, Cincinnati, Pittsburgh, Buffaloe, Cleaveland, and Detroit; to which they will add, Chico, or some other point near the mouth of the Arkansas, Trinity, or a spot near the junction of the Ohio and Mississippi; Evansville or some point still less remote from the mouth of the Wabash; and Parkersburg, or Guyandotte, in Western Virginia. With such, or even a less number, no sick person, on board a steamboat or schooner would suffer longer than one or two days before he could be lodged in a hospital, where the early application of medicine might preserve his life, and permit him to prosecute his voyage in a subsequent boat; and those who descend our rivers in flat boats would not, in general, be more than two or three days, in any part of their exposed and tedious voyage, without being able to command the requisite medical advice, whereby many valuable lives would be saved, and the prosperity of our commerce greatly promoted.

Sixth. The location, erection and support of these hospitals, are not likely to be accomplished by the different States; for justice requires, that the advantages they would afford should be reciprocally enjoyed, and, therefore, that they should not only be erected at the same time, but in such places as would combine the whole into one great system of national charity; neither of which could be accomplished without such negotiations between the States interested, as are not contemplated in the Federal Constitution.

Seventh. Your committee, therefore, are of opinion, that the work properly and constitutionally belongs to the General Government. That it is strictly national. That the trade which it is designed to cherish, is not only a part of the coasting, but the foreign trade of the United States; and that it is entitled to the same fostering care of the Federal Government, with that of the old Atlantic States, for which similar provision has been already made. Your committee, moreover, regard the commerce of the West as a nursery of seamen; for in the event of a maritime war, the boatmen of the lakes and the Mississippi would make both willing and able sailors.

Eighth. Still further, these hospitals would often be found serviceable in the transportation of our troops under the peace establishment; and in case of a continental war with a foreign power, they would offer very great advantages to our armies, whether stationed on the Lakes or the Gulph, or marching to or from either.

Ninth. Without intending to forestall the wisdom of Congress, to whom your committee hope this subject will be presented by the Convention, they would suggest that there are two obvious sources of the ways and means, for the accomplishment of this important object. First, the per centage of 20 cents a month while in actual service, on steamboat and ship hands, similar to that on the ocean. The sum that might annually be raised at this rate, would, if 8,500 are employed half the year, amount to 5,100 dollars. But this sum would not be sufficient to support hospitals for the steamboat and schooner sailors alone, much less to embrace the far greater number that are engaged in the management of flat bottomed boats; which, fitting out and departing from a countless number of places, and each one designed for a single voyage only, are not and never will be generally registered in any port of entry. Secondly, the public lands lie chiefly in the basins of the Lakes and the Mississippi, and are augmented in value, by whatever promotes the prosperity of those who have already purchased. Apart, then, from all considerations of justice to the West, your committee are of opinion, that those who hold the national domain in trust, would be in the direct execution of that trust, having the value of the remainder in view, were they to pledge a part of the proceeds of the land sales to this great object. But your committee, as citizens of the West, would urge upon Congress, that appropriations of the public money should, as far as practicable, be equal over the nation; that hitherto their elder brethren of the sea-board have been favored with far greater disbursements than they; and that in erecting and permanently endowing, the proposed system of Commercial Hospitals, they

would but do that, which the Western States may of right claim, as portions of the Union.

Tenth. In several places, as New Orleans, Natchez, Memphis, Louisville and Cincinnati, hospitals have already been erected by the States. These might, by arrangement, be made to receive the class of persons, for whom the general government would provide, those establishments receiving an annual appropriation. But in the other places, it would be necessary to erect and furnish hospital edifices; which in most cases might, perhaps, be done in connection with the States. When erected by the Federal Government alone, and designed merely for boatmen, they need not be large, as the number of patients at no time would be great. As to the *relative* endowment of these hospitals, it must be according to the judgment of Congress, when directed by the facts which indicate the relative number of the sick which they might respectively admit into their wards. New Orleans should obviously receive a larger appropriation than Natchez, and Louisville more than Pittsburgh; but your committee do not venture on these details any further, than to express an opinion in favor of unequal endowments, as required by inequality in the responsibilities of different places.

Imperfect as this report necessarily is, from the short time allowed for its preparation, not less than the novelty of the subject, and the difficulty of procuring correct data, your committee indulge the hope, that it will be found sufficient to ensure the co-operation of the Convention, in the great work of national beneficence, which it is designed to promote. It is due to the character of our profession, that we should zealously aid in every work of public charity, that has for its object the mitigation of human suffering and the preservation of life; and the physicians of the immense range of new and rising States, immediately interested in this great object, especially owe it to Western society, to exert themselves in its promotion. Your committee have confidence in the enlightened benevolence of their brethren, and do not hesitate to expect a hearty and efficient co-operation.

Your committee beg leave to propose the following resolutions:

1. *Resolved*, That a copy of this report and resolutions be transmitted to our General Assembly, through his Excellency the Governor, to the end, that if the objects set forth should meet the approbation of that honorable body, it may present a memorial on the subject to Congress.

2. That printed copies of the same be transmitted to the

President of the United States, the Vice President, Members of Congress, and the Heads of Departments.

3. That printed copies be forwarded to the Governors of all the States and Territories of the Union.

4. That 500 additional copies be printed for distribution by the members of the Convention, throughout the West.

5. That it be published in the newspapers of Columbus.

6. That the Corresponding Secretary be charged with these distributions. DAN. DRAKE, *Chairman.*

Jan. 6, 1835.

Which Report was agreed to. Whereupon it was

Resolved, That Dr. Drake be authorised to receive one hundred copies of the above Report, extra.

Dr. McNiell, from the Committee on Medical Laws, reported as follows:

The Committee appointed under the following resolution—"Resolved that a committee of three be appointed, to enquire into the expediency of memorializing the Legislature on the subject of a law regulating the practice of Medicine"—have taken the same under consideration, and after due deliberation, unanimously concur in opinion that any effort of the kind at this time, would be premature and inexpedient.

Which Report was adopted, and a motion to reconsider was lost.

The Chair read an invitation to the Convention, from Mr. H. H. Hubbell, Principal of the Deaf and Dumb Asylum, to visit that institution; which was ordered to be filed, and the invitation therein contained, was accepted.

On motion of Dr. Gard,

Resolved, That a Committee of three members be appointed, to report a memorial to this Convention, to be presented to the Legislature of Ohio, on the subject of so amending the Canal law as to permit physicians, when visiting their patients, and those calling for medical aid, to ride on the tow-path. Whereupon, Doctors Gard, Thompson, and Ewing, were appointed said committee.

On motion of Dr. Thompson,

Resolved, That Dr. T. D. Mitchell be requested to deliver a discourse upon the subject of a Lunatic Asylum, on Thursday evening next, at 8 o'clock, and that the citizens of Columbus, both Houses of the Legislature, and strangers now in the city, be respectfully invited to attend.

The Chair appointed Doctors Awl, Parsons and Wright, a Committee of Arrangements, to report the time and place of the delivery of the addresses of Doctors Drake and Mitchell.

Dr. DRAKE, from the committee on the subject of a School for the Education of the Blind, made the following

REPORT:

The Committee to whom was referred the subject of a School for the Education of the Blind, to be established by the State of Ohio, near her Capitol, beg leave to offer the following REPORT:

From the best data which the committee have been able to obtain, there are in the State, at least 500 blind persons; that is, one for every 2,000 inhabitants. It is impossible for these unfortunate individuals to participate in any of the ordinary means and modes of instruction, except those which prevail in the families to which they belong, and which, it is well known, are entirely inadequate. Your committee, therefore, are decidedly of opinion, that it is the duty of the State to create an institution, where the permanently blind may receive that instruction which will enable them to participate more extensively in the enjoyments of society; provide for their own support, and fit themselves for a state of happy future existence.

The methods of instructing the blind in literature, are peculiar and expensive; and a public establishment, with qualified teachers, well provided with appropriate books and apparatus, is indispensable. Having such aids and facilities, it has been demonstrated, the blind may learn spelling, reading, composition, writing, arithmetic, and geography; indeed, make themselves able proficients in every branch of literature and science, as rapidly as children and young persons, of equal native intellect, who are not deprived of their sight.

It is equally certain moreover, that they may be taught a great variety of useful mechanic arts, such as making baskets, mats, cordage, and nets; bottoming chairs, spinning, sewing plaiting straw, and weaving; and even become good house joiners, book binders, and shoe makers, not to extend the catalogue of employments.

They may, also, be taught to perform on musical instruments of every kind, in a scientific manner; and, as in general they possess much native taste and talent for music, be thereby in many instances enabled to earn for themselves a support, while they add not a little to their enjoyments.

In the opinion of the committee, these views only, should induce the General Assembly to extend its fostering arm over these children of misfortune; but there is a different aspect in which the subject may be presented. From the difficulty under which the poorer classes of society do now and must forever labor, in obtaining early and efficient medical aid,

a large proportion of the blind in every community, belong to that order in society. Many of these bereaved and pitiable members of the community are, therefore, perpetually sinking into pauperism, and becoming permanent charges upon the townships, while if they were taught some profitable mechanical occupation, they would be able to support themselves.

There are other considerations still, that cannot fail to press themselves on the mind of the General Assembly, as they have on that of your committee.

First. It is well known, that in disposing of the public lands, Congress have reserved and put under the management of the State, a thirty-sixth part, for the support of popular education, besides three entire townships, for the endowment of colleges and universities.

Second. The State of Ohio has instituted a system of free schools, to be supported by a property tax.

Now the blind, at the present time, enjoy no participation in these public provisions, although in *equity* they are entitled to an equal, in *charity* to a larger, share, than other children; and hence their claims rest on the broad foundations of justice and humanity. Under this view of the subject, your committee are of opinion, that the Convention should earnestly but respectfully press upon the General Assembly, the duty of erecting, furnishing and endowing, in or near the capital of our State, an institution for the instruction, in letters and the mechanic arts, of this unfortunate portion of our population.

For this purpose a direct appropriation from the treasury of the State, of that which, is annually due to the blind, but never expended for them, has been accumulating from its first settlement, should immediately be made. Of the sum necessary, your committee do not feel it their duty to speak; but they may say, that it need not at first be great; for the number of pupils at the beginning would be small, and an edifice, suitably planned, might be enlarged, according to the wants of the public. Your committee would also suggest, that such appropriations might be prospective, and made on the condition that a certain additional sum for the same object, should be contributed by individual beneficence.

As to the annual support of the institution, your committee would observe: 1st. That those who are able to pay, should be charged a price sufficient to cover all their expenses, and contribute something, moreover, to the salaries of the teachers. 2d. That it should be made obligatory on the Trustees or Overseers of the Poor, of the different townships, to send to the institution, for a term of years, at their own expense, all

the blind children and young persons, who are paupers, at a price that should cover their expenses. 3d. That to make up the deficiency, an adequate *per centum* of the revenues arising from the school lands granted by the General Government, and from the tax whereby common schools are supported, should be directed upon this object.

Your committee will only add, that schools for the education of the blind have recently been instituted in Boston, New York, and Philadelphia; that in the short time they have been in operation, they have produced results at once consolatory and cheering to humanity; and that one of their most distinguished superintendants, has written to the person who has the honor to draft this report, that should the State of Ohio undertake the establishment of such a school, he will, if his duties at home can be so arranged as to permit him to be absent, cheerfully devote several months to its organization; without any other compensation, than the reimbursement of his current expenses.

In conclusion, your committee would respectfully express the hope, that every member of the Convention, will regard it as a duty to his profession, to enlighten the public mind and warm the hearts of his friends and neighbors, on this deeply interesting subject. In proportion as physicians shall labor to institute or advance public works of charity or patriotism connected with the medical profession, it will assume a higher rank in society, and acquire that dignity and moral distinction, which it may justly claim.

Your committee beg leave to offer the following resolutions:

1. *Resolved*, That a manuscript copy of this report be transmitted to His Excellency the Governor, with the request that he will lay it before the General Assembly.

2. *Resolved*, That 500 copies be printed for distribution, by the members of the Convention, among the people of Ohio.

3. *Resolved*, That it be published in the newspapers of Columbus.

All of which is respectfully submitted.

DAN. DRAKE, *Chairman.*

Jan. 6, 1835.

Which Report was adopted.

On motion of Dr. Reed,

Resolved, That a committee of three be appointed by this Convention, to inquire into and report upon the expediency of forming a State and other independent Medical Societies. Whereupon, Doctors Reed, Parsons, and Wright, were appointed said committee.

Dr. Wetmore was excused from serving on the Temperance Com-

mittee, and the chair appointed Dr. Drake in his place; who, on behalf of the committee, reported, *instanter*, the following resolution, which was unanimously adopted:

Resolved, That in the opinion of this Convention, it is in the power of the members of the medical profession, to exert a great and most salutary influence on the community, against the use of ardent spirits, and that it should be regarded as a professional duty, to labor in every convenient mode to effect that object.

Whereupon, the Convention adjourned to meet at this place to-morrow, 9 o'clock, A. M.

Wednesday Morning, Jan. 7, 1835—9 o'clock.

The Convention met pursuant to adjournment. The President in the chair. The minutes of yesterday were read and approved.

Dr. Coleman, from the committee on the subject of Vaccination, made a Report, which, on motion, was ordered to lie on the table.

Dr. Kreider, from the committee on the subject of memorializing the Legislature on the propriety of legalizing the study of Anatomy, made the following

REPORT:

Your committee, appointed to report upon the propriety of memorializing the Legislature on the subject of passing a Law to authorize and permit the dissection of dead human bodies, for the purpose of acquiring a practical knowledge of Anatomy, have considered thereof, and now REPORT:

That in their opinion, the enactment of such a law would be highly beneficial to the cause of humanity, and is loudly called for by the best interests of human society. All must admit that the knowledge of that science, acquired at our colleges and schools, is of a character that in its details and practical benefits, is soon, at least partially forgotten. It is necessary to the practitioner of surgery, however conversant he may have been with human anatomy in early life, that he should perform occasional dissections to revive his knowledge of the structure of the human system, so that he can, without embarrassment, perform many of the capital operations of surgery.

How can this be accomplished so long as a statute exists rendering it *penal* to procure a body for dissection. So long as such a law is in force, so long will it be a strong bulwark around the long established and common prejudice that prevails among the mass of mankind against dissections. Let the law be repealed, and you take away much of the vantage ground of its opposers. And why should not those persons, who, by their crimes, have rendered themselves a nuisance and an expense

upon community, and have thus become the property of the country, at their death become subjects for the use and benefit of the country that has been burdened with them? All must admit that dissections *must* be practised somewhere and in some manner, else how can any knowledge of the science be attained? Is it not, then, more just, more politic, more consistent with equity, that this class of individuals should be selected, rather than any other? Surely it is. Impressed with the truth of this proposition, your committee offer for adoption the following Resolutions, to wit:

1. *Resolved*, That this Convention deem it expedient and proper, to memorialize the Legislature to so amend the criminal law, as to modify or repeal the 19th section of the act entitled "An act for the punishment of certain offences therein named," passed March 8th, 1831; and further praying the enactment of a law authorizing the dissection of all persons convicted of capital offences, who die either in common jails or the Ohio penitentiary, or that are hanged in pursuance of law.

2d. *Resolved*, That a committee of three members be appointed, to draft a memorial in the name of this Convention, and present the same to the Legislature at its present session, in accordance with the foregoing views.

Respectfully submitted,

M. Z. KREIDER, *Chairman.*

Which Report was adopted, and Doctors Johnson, Kirtland, and Parsons, were thereupon appointed to prepare and present such a memorial to the Legislature.

On motion of Dr. Cooper,

Resolved, That a committee of three be appointed, to inquire into the probable cost of publishing the journal and proceedings of this Convention, and that the quota of each member of the Convention be assessed and collected as speedily as possible. Whereupon, Doctors Cooper, M'Niell, and Reed, were appointed said committee, who thereupon reported, as follows, to wit:

Your committee, appointed to ascertain the probable cost of printing the journal and proceedings of this Convention, and for the purpose of assessing upon each member his proper quota, REPORT:

That from the best information they have on the subject, the expense accruing to the Convention will be about seventy dollars, and that the sum of one dollar and fifty cents assessed upon each member, will, in all probability, cover all expenses; and that this calculation contemplates the publication of 1000 copies of the Journal and Proceedings of

this Convention, and 500 copies extra of Dr. Drake's Reports upon the subjects of Commercial Hospitals, and a School for the Blind. Which Report was agreed to.

On motion of Dr. Thompson,

Resolved, That this Convention recommend to the medical profession in Ohio, triennial Conventions, to be held in this city.

Dr. Awl, from the committee on the subject of a Medical Journal, made the following Report, to wit:

The committeee appointed to report on the establishment of a Medical Journal under the sanction of this Convention, REPORT:

That they regard the full success of such an enterprize extremely doubtful; they therefore recommend that the project for the present be abandoned. Which Report was agreed to.

Dr. Wright, from the committee on the subject of the Leech, reported, as follows, to wit:

The committee to whom was referred that part of the medical circular which relates to a convenient supply of the Leech, have had the same under consideration, and as they are unable to make any useful suggestions upon the subject, ask to be discharged from its further consideration. Which Report was agreed to, and the committee discharged.

Dr Reed, from the committee on Independent Medical Societies, made the following

REPORT:

Your committee, after due reflection upon the subject of "*Independent Medical Societies*," have become satisfied that very little presents itself, which requires the action of this Convention.

They deem it proper to remark, however, that the voluntary organization of such Societies, in the large towns and populous counties of the State, would, in their opinion, prove highly conducive to the mutual improvement of their members and the elevation of the profession in general, by the spirited emulation and the high and honorable tone of feeling which such associations rarely fail to produce.

Men of the same profession should consider the assembling of themselves together, occasionally, as a duty they owe, not only to themselves, but to their profession and to the community. By this means serious misunderstandings are frequently prevented or annihilated—the social affections are cultivated—noble resolves are entered into—and an interest is soon thrown around the meetings; arising either from recollections of the past, or from the opportunities which may offer for present or future action in the cause of philanthropy and science,

well calculated to elevate the feelings, and strengthen the love of knowledge, which are so truly desirable in the character of a physician.

1st. *Therefore, Resolved*, That this Convention recommend to the physicians of Ohio, the formation of *Independent Medical Societies*, for the purpose of mutual improvement and the rearing of that high standard of professional honor and etiquette, which is of much individual advantage, and cannot fail to elevate the medical character of the State.

2d. *Resolved*, That this Convention recommend *triennial* conventions of the physicians of Ohio, who feel an interest in the organization, advancement and elevation of the medical profession, as well as the promotion of objects of general benevolence.

S. REED, *Chairman.*

Which Report was agreed to.

Dr. Reed, from the committee on the subject of Medical Ethics, made a Report, which recommended to the physicians of Ohio the able work of Dr. Percival, as the standard of professional etiquette; when, on motion of Dr. Drake, said Report was recommitted to the same committee, with instructions to prepare a digested code of Medical Ethics, *adapted to the state of the profession of Ohio.* Dr. Kirtland, a member of said committee, was then, by his request, excused from serving further on the same, and Dr. McNiell was appointed in his stead.

On motion of Dr. Reed,

Resolved, That this Convention appoint a committee of three, to make the proper arrangements for, and superintend the publication of its proceedings—to be done in the best and cheapest manner. Committee, Doctors Reed, Rives, and Parsons.

Dr. Gard, from the committee on the subject of the Canal Law, read a memorial to be presented to the Legislature, on the amendment of the Canal Law. Which Report was ordered to lie on the table.

Dr. Rives, from the committee on the subject of Medical Education in Ohio, made the following

REPORT:

The committee appointed to inquire into and report the means of improving the state of Medical Education in Ohio, have given to the subject all the consideration which their time and other duties connected with the business and proceedings of this Convention would allow. Ample observation has convinced your committee of the existence of radical defects in our systems of education; defects which in many instances have exerted a disastrous influence upon individual fortune, and if not corrected, must ultimately annihilate whatever of respectability remains to the profession.

To arrest this proclivity of medical character, is the duty of every physician. All cannot exert an equal influence in this hallowed work, but there is not one of us who may not contribute, by his instructions or his example, to its success.

It appears to your committee, that of all the means which could be devised for the elevation of the medical profession in the State of Ohio, the adoption and recommendation by your honorable body, of a judicious preparatory and professional course of studies would be most effective. They are aware that this standard cannot now be raised so high as it is in Europe, or as they could desire to see it; but they are nevertheless persuaded, that some standard, accommodated to the condition of our State, which shall exclude the imbecile and illiterate, who are annually assigned to the ranks of the profession, by vanity, or indolence, or some worse motive, may be adopted.

Under a full persuasion of the correctness of these views, your committee will proceed at once to unfold their opinions in relation to the qualifications and preparatory education of students of medicine, the duties of private instructors, and the objects and organization of medical schools.

1st. *Of the qualifications and preparatory education of Students of Medicine.*—There is perhaps no human pursuit which requires a more varied combination of physical, moral, and intellectual qualities for its successful study or prosecution, than the profession of medicine; and yet there is none in which considerations of fitness are more completely disregarded.

Your committee would recommend, among the natural endowments which should characterize the student of medicine, a sound constitution and a vigorous mind, *sana mens in sano corpore*, should be an indispensable pre-requisite. Without health, it is impossible to prosecute successfully, the study of either of the learned professions. Close application and sedentary habits induce a train of unpleasant symptoms in the most robust individuals, but in the delicate and predisposed, they never fail, if long protracted, to produce fatal maladies. But if physical developement be necessary as a means of securing the operations of mind, and in this manner constitute a pre-requisite to the study of medicine, the character of the *intellect itself* must form a much more important consideration. Observation and judgment are the most valuable faculties which a medical student can possess. By their aid he is enabled to comprehend the principles of the science, and to apply them to the treatment of diseases. If to these faculties he add inquisitiveness and ambition to impel him forward in the acquisition of knowledge, industry to sustain him, and a gen-

tlemanly demeanor, the offspring of a benevolent and feeling heart, his intellectual and moral qualifications may be considered as complete. But education has yet to impress her seal upon the character of the individual, before he can be regarded as suitably prepared for the study of medicine.

In relation to many of the branches of learning taught in our Universities, their importance is variously estimated by different individuals. No diversity of opinion, however, it is presumed, can exist as to the indispensable necessity of a correct elementary education, including grammar, the art of composition, physical geography, and the general outlines of history. To these should be added, if the student aspire (which he should always do) to the elevated places in the profession, a respectable attainment in classical learning, in mathematics, and the natural sciences. Chemistry is so generally recognized as a valuable acquisition to the physician, that it is already adopted as a branch of study in every medical school. Natural philosophy, botany, zoology, and mineralogy are less generally admitted among the preparatory studies, but their relations to medicine are sufficiently obvious to make them objects of interest to the inquisitive and enlightened student. Without some knowledge of mechanical laws, we should be unable to understand many of the functions of the human system, such as seeing, hearing, respiration, and circulation. Botany and zoology furnish important aids in our physiological researches, but the former, as does mineralogy, connects itself immediately with the materia medica.

Your committee have indicated the branches of learning which they would recommend as a preparation for the study of medicine, without any attempt, by elaborate exposition, to show the relation of its several parts to our science. Without pretending to attach equal value to every part of the scheme, your committee would take leave of the subject with the expression of an ardent hope, that the members of this Convention will all unite their efforts in favor of a more elevated scale of preparatory and auxiliary studies, and thus throw their individual influence in the cause of regenerating the profession.

The *second* branch of the enquiry which we proposed in the investigation of this subject, related to *private pupilage*. Of the numerous defects of this system, and their deleterious operation upon the profession, it would be vain to attempt an account. We shall be content to draw your attention to a few of the most obvious duties of private preceptors.

Whenever an individual makes application to a physician for admission into his office as a pupil, it will be his duty to examine the candidate rigidly as to his preparation. If he

discover any deficiency in the essential branches of a proper preliminary education, it is the duty of the physician to admonish him of his incapacity, and to advise him to apply himself to some other avocation. But if his examination be approved, a more pleasant duty awaits the physician. The candidate is to be apprized of the *magnitude* of the undertaking which he has assumed, and of the importance of diligence and method in his studies. For the purpose of securing these results, it will be the duty of the preceptor to institute regular and systematic examinations. By these means the mind of the pupil will be deeply impressed with the subjects of his reading, and he will be stimulated to industry and exertion. But it is not the duty of the preceptor to aid his pupil by his prelections and examinations *only*. He must provide his office with plates, anatomical preparations, and all other facilities which can assist the progress of his pupils. By the assiduous and faithful discharge of these duties, he will have the satisfaction of seeing his pupils daily improving in knowledge, and ultimately prepared to take an honorable position in the ranks of the profession.

There are two defects in private pupilage, connecting themselves with the student, which, in the opinion of the committee, deserve the serious consideration of medical men.

The first is the period of pupilage. This is much too short. It is not at all unusual for the student to commence the practice of medicine at the end of eighteen months or two years. The influence of the profession should be brought to bear upon this evil until it is rectified, and medical character is redeemed from the reproach of incompetence, thus brought upon it.

The second defect to which allusion was made, is the encouragement held out to men of slender means, to engage in the study of medicine, when it is almost certain that their pecuniary situation, must compel them either to abandon the pursuit, or to engage in it prematurely and without preparation—a course of this kind is cruel to the individual, and a crying sin against the interests of humanity.

3d. *Medical Colleges.*—These are important institutions. They are designed to perfect and complete medical education, which generally commences under private preceptors. It is evident from this consideration, as well as from the influence they radiate through the country in which they are located, that much care and attention should be bestowed on their organization. The following propositions in relation to this subject, will be generally assented to:

I. The professorships should be filled with men most eminent

for abilities and attainments, who should combine with these qualifications an aptitude for teaching.

II. *The number of professors.*—On this subject some diversity of opinion prevails. Six, seven, and eight have been advised. Circumstances may occur to render the one or the other proper. But your committee entertain the opinion, that where no peculiar cause operates to affect the decision, the number sholud correspond to the natural division of medicine, into 1st, the Institutes of Medicine. 2d, the Theory and Practice of Medicine. 3d, Materia Medica. 4th, Anatomy. 5th, Institutes of Surgery and Operative Surgery. 6th, Obstetrics and the Diseases of Women and Children. 7th, Chemistry. Medical Jurisprudence to be distributed according to its affinities.

III. Experiments and demonstrations should constitute a principal object in medical schools. Much that is taught in lectures might be as successfully studied in the closet; but chemistry, which is an experimental science, anatomy, operative surgery, and obstetrics, which are demonstrative, can no where be so advantageously cultivated, as in public institutions, where the means of illustration are employed by the professor, and may be repeated by the student.

For the sake of these facilities, as well as for many other reasons, every individual who aspires to become a *useful* physician, should feel himself under the highest obligations to attend lectures, if not to graduate, in some respectable medical college. Unless he do this, his education must be regarded as radically defective, and his practice cannot fail to conform in its general character, to his education.

In the opinion of your committee, much advantage would result to the cause of medical education, if by a combined and associated action between the medical institutions of our country, their sessions could be prolonged, and the standard of professional attainment elevated. Your committee are aware of the difficulty, of the impracticability, indeed, of an independent movement in these public matters; but they feel that the interests and dignity of the medical profession are so deeply concerned in these reformations, that they have assumed the responsibility of throwing out these hints, under the hope that at some future time they may be acted upon by those who only are competent to afford relief in the premises.

L. C. RIVES, *Chairman.*

Jan. 7, 1835.

Which Report was agreed to.

Dr. Thompson, from the committee on that subject, Reported as follows on the subject of a Lunatic Asylum:

REPORT.

Humanity and the character of the State of Ohio, call imperiously for the erection of an Asylum that will be creditable to the State, and in all respects adapted to the relief and care of mental derangement. On this topic, it is believed that no diversity of opinion obtains in the medical profession; and under these impressions, the committee beg leave to submit for your consideration, the following memorial to the Legislature now in session.

To the Honorable, the Legislature of Ohio,
In General Assembly met:

The Medical Convention assembled in this city, deeply impressed with the importance and absolute necessity of having a suitable establishment for the treatment of insane persons, most respectfully submit to your honorable body the following facts and considerations in the premises.

It is known to the Legislature that an institution exists in the city of Cincinnati, bearing the appellation of a Lunatic Asylum; and it is equally well known that it has proved totally inadequate to the ends for which it was designed, being in fact nothing more than a prison. The Faculty of the Medical College of Ohio, who are, by law, the attendants on that establishment, have repeatedly declared their conviction that it is wholly in vain to attempt the restoration of reason, of those whom disease has rendered the unhappy subjects of confinement therein, and that the arrangement throughout is rather calculated to render insanity permanent, than to promise a cure, or even a partial restoration. This being the case, no member of our profession can advise that the insane in his vicinity be sent to Cincinnati, and consequently Asylums in other States are recommended.

Your memorialists need scarcely remark to your enlightened body, that the time has already gone by in which the ideas of a *prison* and Lunatic Asylum were inseparably associated in the mind; and thrice happy is it for the *unfortunate insane*, that the progress of science and the enlightened benevolence of the age, are fast dispelling the remnant of barbarism, so revolting to humanity.

That, under proper circumstances, insanity in most cases is curable, is a fact too well established to admit of a doubt. This then, in connection with the fact that of all God's creatures on earth, none are so awfully calculated to excite the moving sympathies of our nature to deep commisseration, as is the form of man deprived of reason, should, and it is

believed will, enlist in behalf of the scheme of your memorialists, the favorable consideration of the christian, the patriot, and the philosopher.

The deaf mute, though deprived of a portion of the good gifts of a bountiful Creator, is in many respects a reasonable and intelligent creature, and susceptible of a high degree of moral and intellectual culture. The same remark will apply to the unfortunate blind. They both demand of savage and civilzed man a portion of sympathetic pity; nor is there in existence a heart so cold as to be unwilling to concede the justice of such a demand. The deaf and the blind are, we say, rational creatures, both calculated to impart to their friends the means of enjoyment, and in return, to experience many of those feelings of affection and comforts of existence, which render life so desirable to the family of man. Indeed, so true is this remark, that we often see the affections of a family concentrated upon such unfortunate member, even to favoritism; and this must in some degree compensate for the privation of which the individual is the subject. But not so with him who is insane. Himself an object of heart-rending commisseration, he is equally incapable of receiving or imparting joy. View the subjects of every variety of insaniiy, from the drivelling idiot to the furious maniac, and what is to be seen but objects of pity, which, when disconnected with the probability that they may yet be restored to the use of reason, cannot fail to rest as a leaden weight upon every feeling heart; but which, when associated with the idea of a restoration of their senses, fill every heart with benevolent resolves.

Your memorialists, therefore, only deem it necessary to call your attention particularly to the fact that has been already stated, (the entire unfitness of the present establishment bearing the name of Lunatic Asylum,) in conjunction with the fact that there is now in your State, not less than 600 to 1,000 insane persons, entirely destitute of the proper means of recovery, to ensure such legislation as the pressing importance of the subject demands.

In a State which has already expended her millions in the construction of commercial highways and literary and benevolent institutions—in a State wealthy in her resources and proud of her wealth, a call from the unfortunate cannot be heard in vain.

In regard to the location of the Asylum, your memorialists are of opinion, that a situation more central than Cincinnati should be selected. In such a project the convenience of every part of the State should be consulted, as all have an equal interest therein. In this view of the subject, it would

seem that no place presents so many advantages as the city of Columbus, and it is believed that none would be more acceptable to the community at large.

The Medical Convention would not so far infringe upon the rights and privileges of your honorable body, as to be wiliing to make any suggestions in relation to the funds proper to be called into requisition in the erection of the establishment contemplated in the memorial, nor as to the means of supporting the same, but would respectfully express it as their opinion, that to be useful in the highest degree, there should be attached to it a sufficient quantity of ground to answer the purpose of gardening and such other labors and amusements as the nature and objects of such an institution might require; and would also beg leave further to recommend to the notice of the Legislature, the "Friends' Asylum," near Philadelphia, and a similar institution at Hartford, Connecticut, as suitable models for the guidance of those to whom the erection of the contemplated Asylum may be committed; and for much information upon the subject at large, to the report of the "Board of Commissioners appointed by the General Assembly of Ohio, March the first, 1831, to visit the Commercial Hospital and Lunatic Asylum of Ohio, at Cincinnati." And your memorialists, as in duty bound, will ever pray.

R. Thompson,
Thos. D. Mitchell,
Wm. M. Awl,
Jno. Eberle,
Edwin W. Smith. } *Committe.*

[After the reading of the above Report, Dr. Drake offered a resolution, declaring that the present Lunatic Asylum at Cincinnati is inadequate to the wants of the State, and in all respects imperfect and requiring improvement, but omitting a recommendation to remove it to Columbus. The chair decided that the resolution was out of order.

The manuscript has not come into the hands of the publishing committee, who design by this note to supply the omission.]

Which Report was agreed to, and on motion, the memorial was ordered to be signed by the officers and forwarded to the General Assembly.

On motion of Doctor Kreider.

Resolved, That the digested code of Medical Ethics published in the proceedings of the General Medical Society of Ohio, in the year 1831, be published in the proceedings of this Convention, viz:

Rule 1. It is the duty of every medical practitioner to treat his patients with steadiness, tenderness and humanity, and to make due allowances for that mental weakness which usually accompanies bodily disease. Secrecy and delicacy should be strictly observed in all cases in which they may seem to be peculiarly required.

2. The strictest observance of temperance cannot be too strongly inculcated on the minds of the practitioners of medicine and surgery, a clear and vigorous intellect and a steady hand, being absolutely necessary to the successful practice of those branches of medical science.

3. Unfavorable prognostication should never be made in the presence of patients; yet, should there seem to be immediate danger, it becomes the duty of the medical attendant to apprise the patient's friends of that circumstance.

4. In every instance in which one physician has been called on to visit the patient of another, a consultation with the the former medical attendant should be proposed. Consultation in difficult cases should always be recommended, and the physician called on for that purpose, should always pay the greatest degree of respect to the practitioner first employed, and allow him the privilege of delivering all the directions agreed upon.

5. Special consultations are sometimes wished for; in such cases the physician called on should carefully guard against paying another visit, unless he should be requested to continue his services by the patient, or some of his friends.

6. When one physician is called on to visit the patient of another in his absence, or during short indisposition, he should not manifest a wish to continue in attendance any longer than the physician first called on should be able to resume the charge of the case, unless a continuance of his services should be expressly wished for by the patient or his friends.

7. Physicians should not visit their patients too frequently, lest seeing them oftener than necessary might produce unsteadiness in the treatment.

8. Theoretical discussions should not be too freely indulged in consultations, as they frequently give rise to much perplexity, without any improvement in practice.

9. The junior physician in attendance should always deliver his opinion first, the others according to seniority, and a majority should decide; but in the event of a tie, the physician first in attendance should give the casting vote in regard to the future treatment, and to him should be entrusted the future management of the case, unless the patient or his relations should object to his being continued.

10. Although the possession of a diploma, honorably acquired, furnishes presumptive evidence of professional ability, and entitles its possessor to pre-eminence in the profession, yet, the want of it should not exclude practitioners of experience and sound judgment from the fellowship and respect of the regular graduate.

11. In consultations, punctuality in meeting at the same time shoul be strictly observed, but the physician who first arrives, should wait for a reasonable length of time for the arrival of others. A minute examination of the patient, however, should not take place, until one or more of the medical attendants are present, except in cases of emergency. All subsequent visits should, if practicable, be made by mutual agreement, and no medical discussion should take place in the presence of the patient.

12. Attendance on members of the profession or their families, should always be gratuitous, but should not be officiously obtruded. Should the circumstances of the medical practitioner indisposed, enable him to make a recompense for medical services rendered to him-

self, his wife or family, it is his duty to do so, especially if he reside at a distance.

13. When one medical practitioner is called on to visit a patient whose recovery has been despaired of by the physician first in attendance, and the disease should afterwards terminate fatally under his management, he should avoid insinuating to the friends of the deceased that if he had been called on a day or a few hours sooner, he could have effected a cure. Such a course of conduct is highly reprehensible, and empirical in the extreme. And, in the event of the patient's recovery, such a person should not assume all the credit, as the cure might have been partly effected by the medicines prescribed before he took charge of the case.

14. The use of nostrums and quack medicines should be discouraged by the faculty, as degrading to the profession, injurious to health, and often destructive of life. Should patients laboring under chronic complaints obstinately determine to have recourse to them, a reasonable degree of indulgence should be allowed to their credulity by the physician; but it is his sacred duty to warn them of the fallacy of their expectations, and the danger of the experiment, and the necessity of strict attention to the effect produced by them, in order that their bad effects, if any, should be timely obviated.

15. No physician should, either by precept or example, contribute to the circulation of a secret nostrum, whether it be his own invention, exclusive property, or that of another. For, if it be of real value, its concealment is inconsistent with beneficence and professional liberty, and if mystery alone give it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice.

16. In all cases where diversity of opinion and opposition of interest give rise to controversy or contention between two or more members of the profession, the decision should be referred to a sufficient number of physicians, as they are frequently the only persons in the community capable of properly estimating the merits of the dispute. But neither the subject litigated, nor the decision thereon, should be communicated to the public, as individual reputation might suffer, and the credit of the profession generally be injured.

17. A wealthy physician, or one retired from practice, should refuse to give gratuitous advice, unless the danger of the case (the absence of the practising physician) or the poverty of the patient should warrant him in so doing. In all cases where he may be preferred, he should recommend a consultation with some one engaged in active practice. This rule should be strictly observed, as a contrary course is gratuitously depriving active industry of its proper reward.

18. When a physician is called on suddenly to visit the patient of another, in consequence of some unexpected or alarming change in the symptoms, he should adopt a temporary plan of treatment, suited to present circumstances. He is not warranted in interfering afterwards, unless requested to take charge of the case, when he should propose an immediate consultation with the physician previously employed.

19. Physicians should never neglect an opportunity of fortifying and promoting the good resolutions of patients suffering under the bad effects of intemperate lives and vicious conduct; and, in order that their counsels and remonstrances may have due weight, it will readily be seen, that they should have full claim to the blameless life and high

moral character which we have stated to be a necessary pre-requisite to an honorable stand in the profession.

20. Medical men should "remember the Sabbath day to keep it holy;" and visits should, as far as consistent with professional engagements, be made either before or after public worship, or during its intervals.

On motion of Dr. Drake,

"*Resolved*, That in the opinion of this Convention, it would greatly promote the practice of Vaccination, for the General Assembly to enact a law, requiring, That after a limited time no child shall be admitted into the public schools, who has not been previously vaccinated."

On motion of Dr. Drake,

Resolved, That the thanks of this Convention be returned to the Marshal of Ohio, for the use of the room in which we have met, and also to the trustees of the Presbyterian church, for the use of the room in which this Convention was organized.

On motion of Dr. Earl,

Resolved, That the thanks of this Convention are due to the officers of this Convention, for the able and impartial manner in which they have discharged the duties of their respective stations.

On motion of Dr. Drake,

Resolved, That after having visited the State Asylum for the Deaf and Dumb, the members of this Convention feel it a duty to express the most decided approbation of its plan, arrangements and discipline, not less than of the progress of improvement in the pupils.

On motion of Dr. Cooper.

Resolved, That the thanks of this Convention be tendered to Dr. Wm. M. Awl, for the very efficient part he has taken in originating this Convention, and the prompt attention he has shown to the comforts of this Convention as a body.

On motion of Dr. Drake,

Resolved, That after having visited and inspected the Penitentiary of the State, the members of this Convention highly approve of the discipline and police of that establishment.

On motion of Dr. Drake,

Resolved, That it shall be the duty of the Secretaries of this Convention, to give at least three months' notice, in the newspapers of this city, of the next meeting of the Convention.

On motion,

The Convention adjourned until the first Monday of January, A. D. 1838.

PETER ALLEN, *Pres't.*

[Attest]

M. Z. KREIDER, *Rec. Sec'y.*

WM. M. AWL, *Cor. Sec'y.*

Art. III.—Gossamer.

Having *administered* to our readers in one *unbroken dose*, the *officinal* report of the proceedings of the late Medical Convent on at Columbus, without as yet seeing any scowling movements of the seventh pair of nerves, we are encouraged to *exhibit* a second, promising not to repeat it for three years. By the end of that long *period*, the *vis medicatrix naturæ*, will, we hope, have restored them from the influence of the present *portions;* especially, as that we are about to give, will be a *diffusible stimulus*, and of course, altogether transient in its effects.

We happened once to know a President—not of the United States, for they are not easily *known*, but of a College—not the College of Pharmacy neither, but of the arts and sciences, (not meaning however that pharmacy is deficient in either,) —who happened to introduce a new word into one of his daily orisons, and was immediately rewarded with the clappings of his pupils. But what of that? Why—the doctors of Ohio have had a meeting—it ran through half a week—occupied itself on a variety of subjects, (excluding professorships, patients and fees,) and parted without a quarrel, or even the slightest *nervous irritation*. They deserve applause then, and let them have the clapping that is due from those, who take delight in declaiming against our respectable profession.

Ovid informs us, that the Alcedo had the power of calming the waves of the sea; but as the King-fisher is not in this climate through the winter, our Halcyon days cannot be ascribed to his pacific influence; and although a different aquatic bird was present, it is well known, that his power consists in raising, instead of tranquillizing the *breakers*. It is more probable then, as the *expressed oils* can quiet the agitations of the ocean, that the different organs of our body, might have been so lubricated as to move smoothly over one another. Whatever theory may be adopted, we can testify, that the meeting was altogether a most harmonious and pleasant affair. The 10 or 12 committees, composed of gentlemen who are accustomed to *despatch subjects*, were ready, and actually did report,

on the second and third days of the Convention; and although all the reports were not as long, they had the merit of being as much to the point, as those made in some other general assemblies. And then for the disucssions. Aye, they might have been studied as a model. No *caustic* applications to a worthy, but timid and flinching brother, to make him wince, for the diversion of his opponents; no long and limping speeches, to *narcotise* the Convention; no anxious hopes and fears about the temper of constituents; no concern as to the kind of *political* epidemic, which may prevail on the second Tuesday of October next; no calling for the yeas and nays, on a *rider* of seven words, upon the seventh amendment, to the seventh resolution, of a series, declaratory of some old medical axiom. But, on the contrary, a "small chance" of technicalities; a "powerful sight" of brevity; a "mighty" straight-forwardness; an early *crisis*, and a speedy call for the final vote, demonstrated the absence of every kind of monied influence, the *radix* of "lengthy" debates, as well as of many other lesser evils.

Some of the members regretted, that the convention had not been called for some other month than January; but if that body would render its good example beneficial to others, it should continue its meetings, when those who need an exemplar in deliberative proceedings, are in session.

Its *modus operandi* led to other, and, as it respects the profession, more interesting fruits. Several old friends met for the first time for many years; and found that, by having lived apart, they were as good friends as ever; others, who had long corresponded, formed a personal acquaintance; some who had cherished prejudices against others, had their minds *depurated;* pupils and preceptors met as equals, and exchanged pledges to meet again; the *callidum innatum* of every heart was raised above mean heat; and even the temperature of the atmosphere; was kept quite comfortable while the *tinctures* froze in the bottles of our isolated and unsocial brethren, east of the mountains.

We hope that the *excitement* of which we speak, will spread

sympathetically through all the *organs* of which our profession is composed; that medical conventions will speedily be gotten up in all the states, and especially those of the West, where the *organization* is still so incomplete, from the constant *infiltration* of of new *elements*. Let them not consist of delegates, nor be bound together by the *twisted sutures* or *many tailed bandages* of legislation; but primary assemblies, for social intercourse, mutual encouragement, deliberation, and declaratory reports a id resolutions, on the subjects, which should occupy the attention of the members of a scientific and benevolent profession. We should even delight to see it become fashionable for the physicians of neighboring states, to visit each other on these occasions; and hope, (if preserved from the hands of the *doctors* and druggists,) to live long enough to participate in such *consultations*.

The West is dashing on like a steamboat. The *nutritive secretion* has great activity, and every day sets up some now mode of *organization*. There is even danger of *hypertrophy*, before it has acquired mature age; but medical men are not accessary to this effect, except by preserving too many lives; and they should not hesitate to unite themselves into one *organ;* and attract to it a full share of the *nutritive matter*, which *circulates* through the great social body; for otherwise, they may lose their *vitality* and *slough* off.

At night, after the convention adjourned, a majority of the members met together, for a farewell greeting; and brethren from the valley of the Cuyhoga, the Muskingum, the Sciota and the Miamies, exchanged reciprocal expressions of good feeling, and laid plans for future correspondence, and social visitings—confirming their promises with a glass of Madeira, instead of *antimonial*, wines reserved in charity for their patients.

When the hour of parting arrived, one of them favoured the company with a song, prepared for the occasion; and as the lyrick department of our *medicinal* literature (containing dirges only) is rather in a state of *atrophy*, we shall make it the gossamer of this badinage.

PARTING SONG.

TUNE—AULD LANG SYNE.

I.

From Erie's chill and misty coast,
  Ohio's sunnier shore,
We came to blend our various thoughts,
  Then part to meet no more.
Ah! we must part my stranger-friends,
  This kindly greeting o'er,
But let our hearts together cling,
  Deep pledg'd forevermore.

II.

As round the festive board we stand,
  Where wit and song combine,
Let gen'rous glances mingle bright,
  And soul with soul entwine:
For soul with soul, my trusty friends,
  When mingling deep and warm,
Can glow beneath the world's cold frown,
  And mock its cruel scorn.

III.

When o'er the midnight lamp we toil,
  Nor mark the fleeting hours,
The dear remembrance of this night
  Will cheer our languid pow'rs.
Your notes of melody, my friends,
  Will swell and echo round,
And wake our dull and dreamy thoughts
  With soul inspiring sound.

IV.

When mercy's voice shall call us forth—
  The storm-fire for our light—
The tempest-song shall welcome bring
  The music of this night.
Then, high and strong, my social friends,
  Our glad'ned hearts will beat,
And swifter on the path will fall,
  Our light and bounding feet.

V.

And while beside the bed of death,
  In darkness and despair,
We soothe the wretched, friendless man,
  To fancy you'll appear

A faithful band of happy friends,
To light the dismal gloom,
With kindling eyes, like torches round
The dark and dreary tomb.

VI.

If near the trav'ler's blazing fire,
We meet in foreign lands,
The tear of friendship, warm, will fall
Upon our clasping hands.
Then shall this parting song, my friends,
Ring gaily through the dome,
And sweeping o'er the heart's soft lyre,
Recall the joys of home.

VII.

And when old time around our brows
Shall bind the snowy wreath,
Bright visions of this scene shall rise,
To stay the hand of death;
For Auld Lang Syne, my friends,
With genial, glowing ray,
Will 'mid the gath'ring clouds of age,
Revive this happy day.

IV. Animal Life in the two Hemispheres.

We think that many of our readers will peruse with interest, the paper of our friend Dr. Lakey, on the causes of the great superiority, of the man of the northern, over the man of the southern hemisphere. Whatever may be thought of his theories, the facts which he has industriously collected and set forth, will be generally admitted; and have an obvious bearing on the natural and physiological history of our race.

V. Western Flora.

Mr. Riddell's Western Flora will be completed in the next number, so that the whole will be comprised in the same volume. Hoping that our feeble efforts, on former occasions, to awaken in the West, an attention to the study of Botany, have not been wholly unavailing, we flatter ourselves that some of our readers will be gratified with the presentation of this *prodromus* of a perfect catalogue of Western plants at the

opening of spring, when the first bloom of the fields and woods cannot fail to invite them abroad. We regard Mr. Riddell as an accurate naturalist, and presume that his Flora, will furnish important facilities to the students of Western Botany.

We may mention that he has had a small edition struck off distinct from the Journal, copies of which, after the month of March, may be had of our booksellers.

VI. White's improved Stomach Pump and Cupping Apparatus.

We have lately examined a small box containing a pump, to which is attached a tube for emptying the stomach, another for administering enemata, and another for injecting the colon; also, nipple glasses, and cups for drawing blood. With all these valuable facilities, the apparatus is quite portable, and sells at a price to bring it within the means of every physician. It is peculiarly adapted to the wants of our brethren in the country.

The proprietor for the western states, Dr. L. B. Cotes, has obtained certificates in its favour from the entire medical faculty of Transylvania University, and two of the professors in the Medical College of Ohio, all of which are expressed in terms of decided approbation. We concur with these gentlemen in all they have said.

VII. Small Pox.

Since the cessation of Epidemic Cholera in autumn, the small pox has been present, though not prevalent in our city. The cases have been scattering, and although several persons have died, there has been no alarm. Had the city been thus invaded before the discovery of vaccination, the mortality, in proportion to its population, would have been very great. Immediately on the appearance of the epidemic, the Cincinnati Medical Society, ever solicitous for the public health, appointed a committee of two members—Drs. L. C. Rives and Wm. Judkins—as dispensers of Vaccine Infection; and our

brethren in the country can at all times obtain supplies of fresh and genuine infection, gratuitously, by writing (post paid) to either of these gentlemen.

VIII. Transylvania University.

This institution still remains, in point of numbers, the second medical school in the Union. The class of the present session (including nine resident graduates) amounts to 246.

IX. Medical College of Ohio.

Our own school has (for it) the respectable number, of 83 pay pupils, and 8 beneficiaries; and but for that "scourge of nations" and medical colleges the *cholera*, it would have been still larger. It is perhaps difficult to account on this principle for so great a falling off in the number its charity scholars. When the power of the State was exercised, in favour of this important department of the college, it was much fuller; and it is worther of consideration, whether the legislature, should not by law, offer a premium out of the state treasury, to such indigent students, as are unwilling to *accept* of the tickets of the professors. Such a measure might be calculated to correct the pernicious effects which the cholera has exerted upon our otherwise flourishing institution. As the state have given 35 or 36 thousand dollars to the college, it can scarcely be necessary to appropriate much more; and the remainder of what is intended for the support of medical education, might advantageously be employed in procuring the attendance of pupils.

X. The Backwood's-man in Philadelphia.

We are informed that Dr. M'Dowell's class on Anatomy and Surgery numbers 110 or 115—the largest we believe that was ever made up in that city, by a private lecturer. It is creditable to the professors of the two Philadelphia schools, that several of them, as we understand, have manifested towards him a decided liberality. Two or three years ago, a number of respectable citizens of this place, sought in vain, to procure for Dr. M'Dowell, the place of an *assistant* in the Medical College of Ohio!

The Western Journal

OF THE

MEDICAL AND PHYSICAL SCIENCES.

JANUARY, FEBRUARY, AND MARCH, 1835.

ESSAYS AND CASES.

Art. I.—Western Flora.

Synopsis of the Flora of the Western States.—By John L. Riddell.

(Continued from page 374.)

CLXXXVI.—*COMPOSITÆ.*

Sub-order I.—Cichoraceæ.—Generally lactescent.

Tribe 1. *Hieraceæ.*—Hawkweed like.

788. Hieracium venosum, *Linn.* Veiny hawkweed. Blood-wort. Jul.–Aug. *y.* 1 to 2 f. 4. sw. W. This and other plants of the genus are doubtless possessed of bitter, astringent, and narcotic qualities.

789. H. paniculatum, *Willd.* Jul.–Sept. *y.* 1 to 2 f. *Bk.* 2 to 4 f. *Eat.* 4. Woods. Ky. *St.* West Va. *Paddock.* O.

790. H. gronovii, *Linn.* Jul.–Aug. *y.* 2 to 3 f. 4. Dry woods. Ky. *St.*

791. H. marianum, *Willd.* Rough hawkweed. Jul.–Aug. *y.* 2 f. 4. Woods. Ark., &c. *Jas.*

792. H. runcinatum, *Jas.* 1 f. Plt. *Jas.*

793. Prenanthes alba, *Linn.* White lettuce. Aug. *y–w.* 5 f. 4. Woods. sr. O. Ky.

794. P. serpentaria, *Pursh.* Lion's foot. Aug. *p.* 2 to 4 f. 4. sw. O. Ky. It is said to cure the bite of the rattlesnake.

795. P. illinoiensis, *Pers.* Sept. Flowers sulphur colour. 2 to 4 f. 4. dp. Brushy Prairie, Dayton, O. Prairies of Illinois. *Michx.*

796. P. racemosa, *Michx.* Sept. *y.* 2 to 4 f. 4. wp. dp. Duncan's Plains, O.

797. P. altissima, *Linn.* Sept. *y.* 4 to 8 f. 4. Mich. *Eat.*

798. P. juncea, *Pursh.* 4. Plt. *Jas.*

799. P. crepidinea, *Michx.* Sept. Pale *y.* 4 to 6 f. 4. New fields. Thickets. Wor. O. Ky. *St.*

800. P. deltoidea, *Ell.* Sept. *y.* 2 f. 4. Ky. *St.*

801. P, miamiensis, *mihi. Leaves* of the *involucre* (calyx) 8, inclosing 15 florets: *flowers* nodding, pale purple, in bundles of 5 to 8, panicled: *lower leaves* on long petioles, (3 to 6 i.) deltoid, acuminate, irregularly dentate, near 7 inches long by 6 in width: *upper leaves* ovate, attenuate at the base, with one or two lateral teeth: *stem* branching above. 5 to 8 f. high. Whole plant glabrous. Sept. 4. Thickets near Dayton, O.

802. P. ovata, *mihi. Involucre* purple, near 7-leaved, 10 to 12-flowered: *flowers* nodding, glabrous, in a terminal raceme, with 2 to 4 in a bunch: *petals* white: *lower leaves* on long petioles, (2 inches.) ovate, acute attenuate at the base, entire, glabrous above, slightly pubescent beneath: *upper leaves* lance-ovate, nearly sessile: *stem* simple, glabrous, 1½ to 2 f. 4. dp. Brushy Prairie, Dayton, O. Flowers in Sept.

803. P. parviflora, *mihi. Involucre* green, 5-leaved, 5-flowered: *flowers* very small, in axillary bundles of 2 to 5, and in a small, terminal panicle, nodding, glabrous: *leaves* generally decurrent into long petioles, denticulate, acuminate, sub-pubescent beneath: *radical leaves* large, (6 inches long by 5 in width,) deltoid, rather coarsely dentate: *lower cauline leaves* hastate-sagitate: *middle* ones irregularly cordate; *upper* ones ovate: *stem* simple, 2 to 4 f. 4. Slaty ravines, Worthington, O. Flowers in Aug.

804. P. proteophylla, *mihi.* Protean-leaved prenanthes. *Involucre* greenish purple, 8 or 9-leaved, 10 or 11-flowered: *flowers* nodding, in a racemose, terminal panicle; and in axillary bundles of 2 to 4: *leaves* petioled, glabrous, acute, 2 to 4 inches long: general outline mostly ovate; varying indefinitely from anomalous projections, and irregular gashes: *stem* simple, 2 to 3 f. 4. Calcareous ravine on the Scioto, near Dublin, O. Rare. Flowers in Sept.

Tribe 2. *Taraxaceæ.*—Dandelion like.

805. Leontodon taraxacum, *Linn.* Dandelion. Ap.–Nov. *y.* 6 to 12 i. 4. Pastures, &c. Intr. W. Tonic, diuretic, aperient, hepatic deobstruent. Wood and Bache, 635. British Med. Fl.

806. Krigia amplexicaulis, *Nutt.* Clasping dandelion. June. *y.* 1 f. 4. Wet woods. Mich. *Eat.* Ohio. *Eberle.* West Va. *Paddock.*

807. K. virginica, *Linn.* Dwarf dandelion. May–Aug. Deep *y.* ☉. 2 to 8 i. Arid soils. Louisville· *M'Murt.*
808. Troximon glaucum, *Pursh.* Jul. *y.* ♂. Mo. Ter. *Nutt.* Rare.
809. T. cuspidatum, *Pursh.* May. *y.* Grassy plains on the Missouri. *Nutt.*

Tribe 3. *Lactucæ.*—Lettuce like.

810. Lactuca elongata, *Muhl.* Wild lettuce. Milkweed. Fire-weed. Aug.–Sept. *y.* 3 to 6 f. ♂. Newly cleared lands. Thickets. Ky. O. Sedative, laxative, diuretic, diaphoretic. Wood and Bache, 381.
811. L. integrifolia, *Big.* Jul. *y.* 3 to 4 f. ♂. rd, &c. Mo. Ter. *Nutt.* Near Cin. O. Properties like the last?
812. L. hirsuta, *Nutt.* Aug. *y* & *p.* ♃. O?
813. L. canadensis, *Linn.* Sonchus pallidus, *Pursh.* Canadian milkweed. Jul.–Sept. *y.* 2 to 3 f. ♃. Woods. rd. Miami country. Medicinal? like 810.
814. L. villosa, *Jacq.* Sonchus acuminatus, *Willd.* Aug.–Sept. *p.* 3 to 4 f. ♂. sw. Miami country. Medicinal?
815. L. ludoviciana, *mihi.* Sonchus ludovicianus, *Nutt.* June. *y.* 3 to 5 f. ♃. Humid places. Mo. Ter. *Nutt.* O. Ky. I have not the means of ascertaining where this species is placed by Don.
816. Agathyrsus leucophæus, *Don.* Jul.–Sept. Bluish *w.* 2 f. ♂. rd. ow. Louisville. *M'Murt.* Miami country.
817. A. floridanus, *Don.* Gall of the earth. Jul.–Sept. *b.* 3 to 5 f. ♂. ow. rd. O. A reputed cure for the bite of the rattlesnake.
818. A. macrophyllus, *Don.* Aug.–Sept. *b.* 4 to 7 f. ♃. Humid situations. Miami country.
819. Sonchus oleraceus, *Linn.* Sow thistle. Jul.–Sept. *y.* 2 to 4 f. ☉. Waste grounds. cf. Intr. W.
820. S. arvensis, *Linn.* Jul. *y.* 2 f. ♃. cf., &c. Intr. O.
821. S. spinulosus, *Big.* Native sow thistle. Aug. *y.* 2 f. ☉. Salt marshes. *Bk.* Woods. rd. &c. Ky. *St.* Miami country.

Sub-order II. Carduaceæ.—The thistle and its allies.

822. Arctium lappa, *Linn.* Burdock. Jul.–Aug. *p.* 3 to 4 f. ♃. Waste grounds. Intr. W. Aperient, diaphoretic, alterative. Wood and Bache, 105. Eberle. Beach.
823. Carduus lanceolatus, *Linn.* Common thistle. Sept. *p.* 2 to 4 f. ♃. ♂. rd. &c. W.
824. C. altissimus, *Linn.* Tall thistle. Sept. *p.* 3 to 8 f.

(12 to 18 f. on the Missouri. *Nutt.*) 4. ow. Old fields, W.

825. C. virginianus, *Willd.* Virginan thistle. Jul.–Sept. *p.* 2 to 3 f. 4. Woods. O. Ky.

826. C. glutinosus, *Bk.* Balsam thistle. Aug.–Sept. *p.* 4 to 6 f. ♂. wp. dp. O.

827. C. discolor, *Nutt.* Jul.–Sept. *p.* 3 to 8 f. ♂. (Margins of swamps. 3 to 6 f. Jul.–Aug. *Bk.*) dp. Middletown, O.

828. C. muticus, *Nutt.* Aug.–Sept. *p.* 2 to 4 f. ♂. Mts. and low grounds. *Bk.* Mich. *Eat.*

829. C. pitcheri, *Torr.* 18i. Near Lakes Huron and Michigan. *Houghton. James.* On sand banks.

830. C. undulatus, *Nutt.* *r–p.* 1 to 2 f. Near Lake Huron. *Nutt.*

831. Elephantopus carolinianus, *Willd.* Elephant's foot. Sept. *p.* 2 f. 4. Dry soils. Near Dayton, O. *Eberle.*

832. Vernonia noveboracensis, *Willd.* Iron-weed. Flat-top. Aug.-Sept. *p.* 4 to 6 f. 4. bt. Wet grounds. W. Medicinal?

833. V. prælta, *Willd.* Also called iron-weed. Aug.–Oct. *p.* 5 to 7 f. 4. md. bt. O. Dr. Stephens of Monroe, O., says that the root of the iron-weed is reputed to be a very active purgative.

834. V. corymbosa, *Schweinitz.* *r.* 1 f. *Eat.* (Aug. *r–p.* 1 to 3 f. 4. wp. Darby Plains, O)?

835. V. altissima, *Nutt.* Aug. *p.* 6 to 12 f. 4. bt. Banks of streams. O. Ky. *Nut.* Ark. *Jas.*

836. V. baldwinii, *Torr.* Above St. L. *Bk.*

837. V. fasciculata, *Michx.* Aug. 4. Prairies of Illinois. *Michx.*

838. Liatris spicata, *Willd.* Ohio devil's bit. Gay feather. Aug.–Sept. *p.* 3 to 6 f. 4. dp. O. Ky. Stimulant, carminiative, diaphoretic. Thompsonians and others.

839. L. squarrosa, *Willd.* Button snakeroot. Aug.–Oct. *p.* 1 to 2½ f. 4. Sandy woods. *Bk.* dp. O. Ky. W. Medicinal. See 838.

840. L.-scariosa, *Willd.* Aug.–Oct. *p.* 3 to 4 f. 4. Sandy woods, &c. O.

841. L. graminifolia, *Walt.* Sept. *p.* 2 to 4 f. 4. Wet pine barrens. *Ell.* Ky. *St.*

842. L. gracilis, *Pursh.* Sept. *p.* 2 to 3 f. 4. Pine barrens. *Ell.* Oak barrens, near Mar. O.

843. L. cylindracea, *Michx.* Aug. *p.* 1 to 2 f. 4. Woods and prairies of Ill. *Pursh.* Mich. *Eat.*

844. L. pycnostachya, *Michx.* Sept. 2 to 4 f. 4. Ill. &c. *Pursh.*

845. L. aspera, *Michx.* Sept. 4. Ill. &c. *Michx.*
846. Conyza camphorata, *Pursh.* Marsh fleabane. Aug.–Sept. *p.* 1 to 2 f. 4. Salt marshes. *Bk.* rb. Ky. *St.* Cin. O. Medicinal?
847. Inula helenium, *Linn.* Elecampane. Jul.–Aug. *y.* 3 to 4 f. 4. rd. &c. W. Tonic, stimulant, diaphoretic, diuretic, emenagogue. Wood and Bache, 355.
848. Arnica fulgens, *Pursh.* Variety of A. montana, *Nutt.* Leopard's bane. Jul. *y.* 1 f. 4. Margins of marshy springs. Mo. Ter. *Nutt.* Stimulant, diaphoretic, emenagogue, &c. Wood and Bache, 108.
849. Chrysopsis mariana, *Nutt.* Aug.–Oct. *y.* 1 to 2 f. 4. Sandy woods. Ky. *St.*
850. C. villosa, *Pursh.* *y.* 4. Mo. Riv. *Nutt.*
851. Zinnia multiflora, *Linn.* Blood marygold. Sept. ⊙. Banks of the Miss. *Pursh.*
852. Gnaphalium polycephalum, *Michx.* Sweet balsam. Fragrant life everlasting. Jul.–Sept. Pale *r.* 1 to 2 f. ⊙. Fields. W. Astringent, pectoral, corroborant.
853. G. americanum, *Linn.* American cudweed. Jul.–Sept. Pale *y.* 6 to 10 i. ⊙. o.w. rs. Mar. O.
854. G. purpureum, *Linn.* Jul.–Oct. Pale *p.* 8 to 12 i. 4. Barren soil. Ky. *St.*
855. G. uliginosum, *Linn.* Marsh cudweed. Aug.–Sept. Yellowish brown flowers. 3 to 6 i. ⊙. rd. mh. Wor. O. Ky.
856. G. plantagineum, *Linn.* Plantain cudweed. May–June. *r–w.* 8 to 10 i. 4. Woods, &c. wp. O. Ky.

Sub-order III. Astereæ.—Star-flower like.

Aster. Star-wort, or star-flower.

§1. *Leaves entire.*

857. Aster hyssopifolius, *Linn.* Aug.–Oct. *w–p.* 1 to 2 f. 4. Sandy fields. Louisville. *M'Murt.*
858. A. solidaginoides, *Michx.* Aug.–Oct. *w.* 2 f. 4. Woods. Louisville. *M'Murt.*
859. A. tenuifolius, *Linn.* Aug.–Nov. *w–p.* 2 to 3 f. 4. rd. Fields. O. Louisville.
860. A. linarifolius, *Linn.* Sept.–Oct. *w–p*, & *y.* 1 to 2 f. 4. dp. rs. Duncan's Plains, O. Ky. *St.*
861. A. linifolius, *Linn.* Sept.–Oct. *w*, or pale *p.* 18 i. to 2 f. 4. sw. Louisville. *M'Murt.*
862. A. ericoides, *Willd.* Aug. Pale *p.* 2 to 3 f. 4. Barren soils. Ky. *St.*
863. A. paludosus, *Ait.* Aug.–Nov. *b.* 1 to 2 f. 4. Borders of swamps. Mo. Ter. *Jas.*

864. A. multiflorus, *Ait.* Aug. *w* & *y*. 2 to 3 f. 4. rd. Fields. Ky. *St.*
865. A. concolor, *Linn.* Aug.–Nov. *b*. 2 to 3 f. 4. Pine woods. Fox Riv. N. W. Ter. *Houghton.*
866. A. cornifolius, *Muhl.* Aug. *w*. 2 to 3 f. 4. ow. &c. O. Ky.
867. A. humilis, *Willd.* Aug. *w*. 1 f. 4. Ky. *St.*
868. A. amygdalinus. *Lam.* Aug.–Sept. *w*. 2 f. 4. Low grounds. O. Ky.
869. A. novæ-angliæ, *Linn.* Sept.–Nov. *p* or *b*. 3 to 6 f. 4. md. wp. dp. O. Ky.
870. A. cyaneus, *Pursh.* Sept.–Nov. *p* & *b*. 3 to 4 f. 4. md. dp. Duncan's Plains, O.
871. A. phlogifolius, *Willd.* Aug.–Nov. *p*. 1 to 2 f. 4. Moist grounds. *Bk.* ow. Ky. *St.* Near Dayton, O.
872. A. carolinianus, *Walt.* Oct. *p*. 10 to 12 f. 4. Swamps. Ky. *St.*
873. A. canescens, *Pursh.* Aug.–Oct. *b*. 1 f. ♂. Mo. Ter. *Nutt.*
874. A. pauciflorus. *Nutt.* Aug. *w*. 10 i. 4. Margins of salt springs. Mo. Ter. *Nutt.*
875. A. sericeus, *Nutt.* ii. 155 *Vent?* Spreng. iii. 525. *p*. 12 to 18 i. 4. Ill. *Nutt.* Mo. Ter. *Houghton.*
876. A. flexuosus, *Nutt.* Sept.–Oct. Pale *p*. 6 to 18 i. 4. Salt marshes usually. Ky. *St.*
877. A. montanus, *Nutt. p*. 1 to 2 f. Mts. Tenn. *Nutt.*
878. A. oblongifolius, *Nutt. p*. 1 f. 4. Banks of the Missouri. *Nutt.*
879. A. albus, *Nutt.* Aug. *w*. 1 f. 4. Mo. Ter. *Nutt.*

§2. *Leaves lanceolate and ovate, the lower ones serrate.*

880. A. puniceus, *Linn.* Sept.–Nov. *p*. 6 to 8 f. 4. (Salt swamps, *Bk.*) dp. wp. md. bt. O.
881. A. novi-belgii, *Linn.* Aug.–Oct. Pale *p*. 3 f. 4. Fields. Ky. *St.*
882. A. gracilis, *Nutt.* Pale *b*. 1 f. 4. Savannahs of Ky. and Tenn. *Nutt.*
883. A. prenanthoides, *Willd.* Aug.–Oct. *b*. 3 to 4 f. 4. cr. bt. O. Ky.
884. A. lævis, *Linn.* Sept.–Nov. *p*. 2 f. 4. Woods and sides of ponds. Ky. *St.* N. W. Ter. *Houghton.*
885. A. conyzoides, *Willd.* Jul.–Aug. *w*. 1 to 2 f. 4. Copses, &c. O. Ky.
886. A. miser, *Linn.* Aug.–Nov. *w*. 1 to 3 f. 4. dp. O. Ky.
887. A. divergens, *Ait.* Var. of miser, *Torr.* Sept. *w–r*. 3 to 5 f. 4. Ky. *St.*
888. A. diffusus, *Ait.* Var. of miser, *Torr.* Sept.–Nov. *w*. 4. Ky. *St.*

§ 3. *Leaves cordate and ovate, serrate.*

889. A. cordifolius, *Linn.* Sept.–Nov. *w.* or pale *p.* 2 to 3 f. 4. Woods, in hilly districts. O. Ky.

890. A. macrophyllus, *Linn.* Sept.–Oct. *w* or pale *b.* 1 to 2 f. 4. rs. sr. sw. Wor. O. Louisville. *M'Murt.*

891. A. undulatus, *Linn.* divesifolius, *Michx.* Sept. Pale *b.* 2 to 3 f. 4. Old fields, &c. O. Ky.

892. A. Shortii. *Flowers* in a spreading panicle: *leaves* nearly glabrous above, scabrous and sparingly pilose beneath: *radical leaves* heart-oblong, pubescent when young, remotely and deeply crenate, almost obtuse: *cauline leaves* mostly on long ciliate petioles, entire, cordate-lanceolate, acute: *floral leaves* (bracts) ovate and lanceolate, sessile, minute, entire: *stem* branching above. Oct. *b.* 2 f. 4. On hill-sides and in ravines. Wor. Cin. O. Ky. The specific name was proposed by Dr. Boot, of London, in honour of one of our most distinguished botanists, Dr. C. W. Short, of Lexington, Ky. Whether the species has been published or not by Dr. Boot, I do not know. The above brief description was taken from dried specimens.

893. A. oolentangiensis, *mihi.* *Panicle* terminal, elongated, few flowered: *leaves* acuminate, scabrous above, rough and pubescent beneath: *radical leaves* long petioled, ovate, obliquely cordate, remotely serrate: *lower cauline leaves* lanceolate, (2 to 4 inches in length,) remotely serrate, on long winged petioles: *upper leaves* lanceolate, half clasping, entire: *stem* simple, strigose. Sept.–Oct. Pale *b.* 2 f. 4. sw. Wor. O. Forests on the Oolentangy River. I first discovered this plant in 1832, on the large, forest clad mound, near Worthington, O.

894. Erigeron purpureum, *Linn.* Purple erigeron. Jul.–Aug. *p.* 12 to 18 i. 4. ow. &c. O. Ky.

895. E. philadelphicum, *Linn.* Aug.–Sept. Pale *p.* 2 to 3 f. 4. ow. &c. W. Diuretic, antilithic. Bart. Med. Bot. 227. Wood and Bache, 284.

896. E. heterophyllum, *Linn.* Scabius. Flea-bane. June.–Aug, *w.* 2 to 3 f. ♂. Waste grounds, O. Diuretic, antilithic. Wood and Bache, 284. Bart. i. 231.

897. E. strigosum, *Linn.* Jul.–Aug. *w.* 2 to 3 f. ♂. md. ow. O. Ky.

898. E. bellidifolium, *Linn.* Robin's plantain. June–Aug. Pale *p.* 12 to 18 i. 4. sw. Ky. *St.* O.

899. E. pumilum, *Nutt.* Low erigeron. May. *w.* 4 i. 4. Plains of the Missouri. *Nutt.*

900. E asperum, *Nutt.* Rough erigeron. Aug. w. 12 i. Plains of the Missouri. *Nutt.*
901. E. glabellum, *Nutt.* Aug. Pale *b.* 12 to 18 i. 4. Plains of the Missouri. *Nutt.*
902. E. divaricatum, *Michx.* Aug. 6 i. Spreading. 1 to 2 f. ⊙. Ky. St. L. *Nutt.*
903. E. canadense, *Linn.* Flea-bane. Jul.–Sept. 2 to 6 f. ⊙. Dry fields. ow. W. Diuretic, tonic, astringent. Wood and Bache, 283.

Solidago.—Golden rod. Flowers yellow.

§ 1. *Racemes secund; leaves with three combined nerves.*

904. Solidago canadensis. *Linn.* Aug.–Sept. 2 to 5 f. 4. Fields. Ky. *St.*
905. S. procera, *Ait.* Jul.–Sept. 1 to 7 f. 4. Swamps and low grounds. Louisville *M'Murt.*
906. S. serotina, *Ait.* Sept.–Oct. 4 f. 4. Woods. Ky. *St.*

§ 2. *Racemes secund; leaves veined.*

907. S. nemoralis, *Ait.* Aug.–Oct. 1 to 2 f. 4. Sandy fields. Louisville. *M'Murt.*
908. S. ulmifolia, *Willd.* Aug.–Oct. 3 to 4 f. 4. sw. Louisville. *M'Murt.*
909. S. recurvata, *Willd.* Sept.–Nov. 3 to 4 f. 4. sw. O.
910. S. odora, *Ait.* Golden rod tea plant. Aug.–Oct. 3 f. 4. ow. &c. O. Ky. Aromatic, stimulant, carminiative. Big. Med. Bot. i. 187. Wood and Bache, 610.

§ 3. *Racemes erect.*

911. S. bicolor, *Linn.* Aug.–Oct. 1 to 2 f. 4. Dry hills. Ky. *St.*
912. S. stricta, *Ait.* Aug.–Oct. 2 f. 4. Sandy woods, *Bk.* Prairies, O.
913. S. cæsia, *Ait.* Aug.–Oct. 2 f. 4. Sandy woods. Ky. *St.*
914. S. latifolia, *Muhl.* Aug. 2 f. 4. rs. sw. O. Ky.
915. S. flexicaulis, *Pursh.* Aug. 2 to 3 f. 4. Woods. Ky. *St.*
916. S. axillaris, *Pursh.* Aug.–Oct. 2 to 3 f. 4. Woods. O. Ky.
917. S. cordata, *Short* and *Peter.* Aug.–Oct. 2 to 4 f. 4. Steep, wooded hill-sides, on the banks of the Kentucky river. *St.* Described in Transyl. Med. Jour. for 1834, page 599.
918. S. tenuifolia, *Pursh.* Sept.–Oct. 12 to 28 i. 4. Pine barrens, *Bk.* dp. O.
919. S. rigida, *Linn.* Bone's styptic. Aug.–Oct. 3 to 4 f. 4.

Mts. *Bk.* dp. Duncan's plains, O. Said to be a valuable styptic, for suppressing hæmorrhage from recent wounds. The leaves are used.

920. S. ohioensis, *mihi.* *Root* perennial, creeping?: *stem* simple: *radical leaves* (when they precede the stem) on long equitant petioles, oblong, retuse, acute and entire at the base, serrate towards the summit, margin scabrous, (near 2 inches wide, by 4 to 6 in length): *cauline leaves* entire, half clasping, lanceolate, acute: *corymb* fastigate. Whole plant glabrous, the margin of the leaves excepted. Seeds 16 to 20, scales of the involucre 8 to 13, oblong, obtuse. Oct. *y.* 2 to 3 f. Wet grassy prairies, Ohio. Van Cleve's prairie, Dayton. Two miles S. from Columbus, O. Pretty closely allied to S. rigida.

921. S. Riddellii, *Frank.** *Root* perennial, creeping: *stem* simple: *leaves* lance-linear, glabrous, acute, entire, margin scabrous: *radical leaves* on carinate, equitant petioles, (10 to 12 inches long), often falcate, 5-nerved, with 2 additional nerves towards the summit, (6 to 8 lines in width, 8 to 10 inches long): *cauline leaves* carinate, sheathing, upper ones lance-oblong: *flowers* in a corymbose fascicle: *involucre* imbricate; scales 8 to 12, appressed, oblong-obovate, obtuse: *rays* 7 to 9, narrow, scarcely exceeding the disk: *disk florets* 10 to 12. Sept.–Oct. *y.* 2 f. Grassy prairies, Ohio. Scott's plains, 12 miles E. from Worthington. Hoffman's prairie, 8 miles E. from Dayton. Allied to the last, more closely than to any other species of my acquaintance. The leaves have a grass-like aspect.

922. Chrysocoma graveolens, *Nutt.* Oct. *y.* 6 to 8 f. ♄. Denuded soils, Missouri banks. *Nutt.*

923. C. nouseosa, *Pursh.* Oct. *y.* 4. Banks of the Missouri. *Nutt.*

924. Bellis integrifolia, *Michx.* Kentucky daisy. (Sept. *w–r.*)? 8 to 12 i. Ky. *St.* Kentucky river. *Peter.*

SUB-ORDER IV. EUPATORINEÆ.—Boneset like.

925. Eupatorium sessilifolium, *Linn.* Upland boneset. Aug.–

* S. radice perenni; foliis integerrimis, glabris, margine scabris: inferioribus radicalibusque longissime petiolatis, subfalcato-lanceolatis, subacutis, distincte 5-nerviis, superioribus vaginiantibus, oblongo-lanceolatis, acutiusculis, obsolete nervosis; petiolis carinatis, equitantibus; caule glabro, striato, corymboso-paniculato; racemis vel fasciculis ?-floris; calycis squamis obtuse ovatis ligulis duplo brevioribus; pedicellis bracteatis, villosiusculis.—*Frank.*

Sept. *w.* 2 to 4 f. 4. Hills about Marietta, O. Ky. Tonic, &c. Raf. Med. Fl.

926. E. purpureum, *Linn.* Purple thoroughwort. Improperly called queen of the meadow. Aug.–Oct. *p.* 5 to 8 f. 4. Wet woods. bt. W. Bitter, aromatic, astringent, diuretic. Wood and Bache, 287. Also hydragogue, antilithic. Beach.

927. E. verticillatum, *Muhl.* Joe-pye's weed. Aug.–Oct. Pale *p.* 4 to 6 f. 4. Low grounds. bt. sw. O. Ky. Mich. Properties doubtless like the plant, very similar to the last.

928. E. maculatum, *Linn.* Aug.–Oct. Pale *p.* 4 to 5 f. 4. Low grounds. Mar. O.

929. E. punctatum, *Willd.* Aug.–Oct. *p.* 3 to 4 f. 4. Mts. *Pursh.* Mich. *Eat.*

930. E. perfoliatum, *Linn.* Boneset. Thoroughwort. Aug.–Sept. *w.* 2 to 4 f. 4. wp. mh. &c. W. Tonic, diaphoretic, emetic, aperient. Bart. ii. 125. Big. i. 33. Wood and Bache, 286.

931. E. ageratoides, *Linn.* White snakeroot. Aug.–Sept. *w.* 2 f. 4. Woods. W. Antispasmodic, diuretic, diaphoretic. Used in nervous diseases. Dose 3i, in infusion. See Howard's works, wherein this plant is figured.

932. E. ovatum, *Big.* Jul.–Aug. *w.* 3 to 4 f. 4. Low grounds. Ky. *St.*

933. E. rupestre, *Rafinisque.* Ky. *St.*

934. E. falcatum, *Michx.* Banks of the Ohio and Scioto rivers. *Michx.* Probably identical with 927.

935. E. altissimum, *Willd.* Aug. *w.* 3 to 7 f. 4. Banks of the Mississippi and Missouri. *Pursh.*

936. Cælestina cærulea, *Cassin.* Mist flower. Aug.–Oct. *b.* 1 to 2 f. (2 to 3 f. *Bk.*) 4. Woods. bt. Near Mar. O. Ky. W.

937. Kuhnia eritonia, *Linn.* (Aug.–Sept. Pale *y.* Mts. *Bk.*) Sept. Pale *y.* 2 to 3 f. 4. dp. Miami country.

938. Mikania scandens, *Willd.* Climbing thoroughwort. Jul.–Sept. *b–w.* Climbing. 4. Low grounds. Ky. *St.*

939. Donia squarrosa, *Pursh.* Aug. *y.* 3 to 4 f. ♂. Calcareous hills, St. L. *Nutt.*

SUB-ORDER V. JACOBEÆ.—Fire-weed like.

940. Cacalia suaveolens, *Linn.* Aug.–Sept. *w.* 3 to 4 f. 4. wp. md. Banks of streams. O. Ky.

941. C. atriplicifolia, *Linn.* Aug.–Sept. *w.* 3 to 6 f. 4. dp. O. Ky.

942. C. reniformis, *Willd.* Aug.–Sept. *w.* 5 to 8 f. Low grounds. ow. Miami country.
943. C. tuberosa, *Nutt.* *w.* 4 to 6 f. Shady hills, around St. Louis. *Nutt.*
944. Tussilago palmata, *Ait.* Ap.–May. 4. Islands of Lake Huron. *Nutt.* Lake Mich. *Hought.* (Demulcent, expectorant.)?
945. Senecio vulgaris, *Linn.* Groundsel. May–Oct. *y.* 18 i. 4. cf. Intr. Louisville. *M'Murt.* Refrigerant, antiscorbutic. Hoop. Dic.
946. S. hieracifolius, *Linn.* Fire-weed. Jul.–Aug. *w.* 2 to 6 f. ⊙. New fields. O.
947. S. elongatus, *Pursh.* Jul.–Aug. 4. rs. Banks of streams. (*y.* 1 to 2 f. Cin. O.)?
948. S. obovatus, *Willd.* May–June. *y.* 1 to 2 f. 4. Rocky hills. sr. Sides of clayey hills. O. Ky.
949. S. balsamitæ, *Willd.* June–Jul. *y.* 1 to 2 f. 4. Damp grounds. O. Ky.
950. S. gracilis, *Pursh.* May–Aug. *y.* 1 f. 4. Rocky banks, *Bk.* (wp. Damp grounds. mh. Wor. O. 7 miles N. from Cin.) The Indian name for this and the preceding species, is *nut-quaw.* The root of either, given in infusion two or three times a day, is said to be a most excellent emenagogue.
951. S. aureus, *Linn.* Rag-wort. False valerian. June–Jul. *y.* 2 f. 4. sw. md. Ky. St. Medicinal?
952. Cineraria canadensis, *Willd.* Canadian ashwort. May. *y.* 8 i. 4. With 948. Worthington, O. Rare.
953. C. integrifolia, *Willd.* Aug. *y.* 4. Mo. Ter. *Jas.*
954. Bœrbera glandulosa, *Nutt.* ii. 166. Denudated soil, banks of the Miss. and Mo. *Nutt.*

Sub-order VI. Helianthieæ.—Sunflower like.

Helianthus. Sunflower. Flowers yellow. There is much confusion in this genus. The prairies of Ohio produce several species which are as yet unpublished. I have drawn some descriptions from living plants, which I shall be happy to communicate, accompanied with specimens, to any botanist who will attempt a complete monograph. As it is inconsistent with the design of this Synopsis to insert long and minute descriptions, I prefer to omit all but such as have heretofore been determined.

§ 1. *Leaves opposite.*

955. Helianthus atrorubens, *Linn.* Aug.–Sept. Disk *p.* 3 to 4 f. 4. Gravelly soil. W. *Bk.*
956. H. frondosus, *Willd.* Aug.–Sept. 4 f. 4. Woods. Ky. *St.*
957. H. trachelifolius, *Willd.* Aug.–Oct. 3 to 4 f. 4. Woods. dp. O. Ky.
958. Hispidulus, *Ell.* Sept. 3 to 4 f. 4. Mich. *Eat.* Pine barrens, *Ell.*
959. H. truncatus, *Schw.* Sept. 2 f. 4. ow. Hills, Mar. O.
960. H. scaberrimus, *Ell.* Sept. 4 to 6 f. 4. (dp. Darby Plains, O.)?
961. H. tubæformis, *Willd.* ⊙. Banks of the Missouri. *Nutt.* Seed ground into meal by the Indians, for food.
962. H. pubescens, *Willd.* Aug. 2 to 3 f. 4. Ky. *St.*

§ 2. *Upper leaves alternate.*

963. H. giganteus, *Linn.* Aug.–Sept. 5 to 8 f. 4. dp. &c. O.
964. H. altissimus, *Linn.* Jul.–Sept. 5 to 8 f. 4. Mountain meadows, *Bk.* Ky. *St.* Plt. *Jas.*
965. H. strumosus, *Linn.* Aug.–Oct. 3 to 5 f. 4. ow. dp. O.
966. H. decapetalus, *Linn.* Aug.–Oct. 3 to 4 f. 4. Rocky woods, *Bk.* O. Ky. N.W. Ter.

967. Rudbeckia purpurea, *Willd.* Purple cone-flower. July-Sept. *p.* 3 to 4 f. 4. Barrens. dp. O. Ky. Root aromatic, carminiative. Figured, Bart. Fl. N. A. ii. 84.
968. R. hirta, *Linn.* Hairy cone-flower. Aug.–Sept. *y.* 2 to 3 f. 4. dp. &c. O. Ky.
969. R. triloba, *Linn.* Aug.–Sept. *y.* 4 to 5 f. 4. dp. ow. O. Ky. Figured, Bart. Fl. i. 88.
970. R. fulgida, *Ait.* Jul.–Oct. *y.* 2 to 3 f. 4. Mts. *Bk.* dp. O. Mo. Ter. *Jas.* Figured, Bart. Fl. i. 16.
971. R. laciniata, *Linn.* Cone-flower. Aug.–Sept. *y.* 4 to 6 f. 4. Borders of swamps. bt. &c. O. Ky. Figured, Bart. Fl. i. 51.
972. R. pinnata, *Michx.* Thimble-flower. Jul.–Oct. *y.* 2 to 3 f. 4. dp. O. Ky.
973. R. columnaris, *Pursh.* Jul. *r.* 1 f. 4. On the Missouri. *Pursh.*
974. R. digitata, *Ait.* Aug.–Oct. *y.* 5 to 6 f. 4. Mountains. *Bk.* Mo. Ter. *Jas.*
975. R. amplexifolia, *Willd.* Aug. *y.* ⊙. Louisville. Rare. *M'Murt.*
976. Actinella acaulis, *Linn.* June. *y.* 6 i. *Plt. Jas.*

977. Eclipta procumbens, *Michx.* June. *w.* Decumbent, 1 to 3 f. ⊙? O. Ky. Mo. Ter.
978. E. brachypoda, *Michx.* Aug. Prostrate, 1 to 2 f. ⊙? Near Cincinnati. *Dr. Locke.*
979. Galardia bicolor, *Lam.* June. *p.* 2 f. 4. Grassy hills, *Plt. Jas.* Ky. *St.*
980. Starkea pinnata. *Nutt.* Aug. *y.* 1 to 2 f. 4. Plains of the Missouri. Common. *Nutt.* Plt. *Jas.*
981. Trichophyllum oppositifolium, *Nutt.* Jul. 6 to 12 i. 4? Plt. *Nutt. Jas.*
982. Marshallia angustifolia, *Michx.* Jul. *p.* 2 f. 4. Tenn. *Michx.*
983. Hymenopappus tenuifolius, *Pursh. g–w.* ♂. Mo. Ter. *Nutt.*
984. Actinomeris squarrosa, *Nutt.* Aug. *y.* 4 to 7 f. 4. Fence corners, &c. O. Ky. (*w* & *y.* 3 to 4 f. *Bk. Eat. w.* without rays. *Nutt.*) There is misunderstanding here.
985. A. helianthoides, *Eat.* Jul. *y.* 2 f. 4? ow. dp. Miami Country. W. *Nutt.*
986. Helenium autumnale, *Linn.* American sneezewort. Sept.–Oct. *y.* 2 to 3 f. 4. Low grounds. W. Tonic errhine. *Eberle,* Mat. Med. ii. 248. Big. Med. Bot.
987. Heliopsis lævis, *Pers.* Ox-eye. Aug.–Sept. *y.* 3 to 5 f. Banks of streams. bt. W.
988. Coreopsis tripteris, *Willd.* Jul.–Sept. *y.* 3 to 6 f. 4. Borders of prairies. O. Ky.
989. C. trichosperma, *Michx.* Tickseed sunflower. Aug.–Sept. *y.* 2 to 4 f. ♂. Swamps. wp. O. Ky. Mich.
990. C. auriculata. *Willd.* Sept. *y.* 3 to 4 f. 4. Ky. *St.*
991. C. senifolia, *Willd.* Aug. *y.* 2 to 3 f. 4. Ky. *St.*
992. C. crassifolia, *Ait.* June. *y.* 4. St. L. *Jas.*
993. C. palmata, *Nutt. y.* 12 i. Ill. Mich. *Nutt.*
994. C. tinctoria, *Nutt.* Jul. *y* & *p.* 1 to 4 f. Mo. Ter. *Nutt.* About gardens, O. Intr.
995. C. rosea, *Nutt.* Tickweed. May. *r.* 1 f. Grassy swamps. Louisville. *M'Murt.*
996. C. aurea, *Willd. y.* 4. Louisville. *M'Murt.*
997. C. angustifolia, *Willd. y.* Louisville. *M'Murt.*
998. Bidens frondosa, *Linn.* Burr marygold. Beggar-ticks. Aug.–Sept. *y.* 3 to 4 f. ⊙. Woods and fields. O. Ky. The seeds are said to be alterative.
999. B. bipinnata, *Linn.* Spanish needles. Jul.–Sept. *y.* 1 to 2 f. ⊙. Near cf. O. Ky.
1000. B. chrysanthemoides, *Ell.* Bot. ii. 430. *Michx.* Daisy beggar-ticks. Aug.–Sept. *y.* 1 to 5 f. ⊙. mh. pl. wp. O. Ky.

1001. B. cernua, *Linn.* connata, *Willd?* Aug.–Sept. *y.* 1 to 2 f. ⊙. Near ponds, &c. With 999. O. Ky.
1002. B. comasa, *Hooker.* Ky. *St.*
1003. Verbesina virginica, *Linn.* Virginian crownbeard. Jul. *w.* 3 to 6 f. Louisville, *M'Murt.* Mo. Ter. *Jas.*
1004. Polymnia canadensis, *Linn.* June–Jul. *y.* 2 to 4 f. ♃. sr. sw. &c. O. Ky.
1005. P. uvedalia, *Linn.* Jul.–Sept. *y.* 3 to 5 f. ♃. Mts. *Bk.* Ky. *St.* West Va. *Paddock.*
1006. Silphium ternatum, *Linn.* Jul.–Aug. *y.* 3 to 6 f. ♃. Borders of prairies. dp. O.
1007. S. atropurpureum, *Retz.* Aug.–Sept. *y.* 4 f. Fields. Mar. O. Central O. Rare.
1008. S. perfoliatum, *Linn.* Indian cup-plant. Aug.–Sept. *y.* 4 to 6 f. ♃. Fields and prairies. O. Ky. I believe this was one of the Indian remedies. An account of its virtues and the mode and object of its administration, may be found in Howard's work.
1009. S. terebinthinaceum, *Linn.* Rosin plant. Jul.–Aug. *y.* 4 to 6 f. ♃. dp. O. It is probable that this, and several other species of Silphium will hereafter be found to possess valuable medicinal qualities.
1010. S. gumniferum, *Ell.* Aug. *y.* 3 to 5 f. ♃. Fox Riv. N. W. Ter. *Houghton.* dp. O.
1011. S. laciniatum, *Linn.* Giant prairie dock. Aug.–Sept. *y.* 5 to 10 f. ♃. dp. Darby Plains, O.
1012. S. pinnatifidum, *Ell.* Prairie dock. Aug.–Sept. *y.* 4 to 6 f. ♃. dp. Darby Plains, O. The root is large, and fusiform.—The same is true of several other prairie species, and perhaps of all. The last four species are indiscriminately called *prairie dock*, by the inhabitants of Darby Plains.
1013. Chrysanthemum leucanthemum, *Linn.* Ox-eye daisy. June–Aug. *w* & *y.* 1 to 2 f. ♃. Fields, &c. Intr. O. Asthmatic, &c. Hoop. Dic.

SUB-ORDER VII. AMBROSIACEÆ.—Bitter-weed like.

1014. Ambrosiã trifida, *Willd.* Bitter-weed. Jul.–Sept. *g* & *y.* 5 to 10 f. ⊙. bt. &c. O. Ky. &c. Every where very abundant.
1015. A. integrifolia, *Willd.* It seems to be an accidental, rather than a permanent variety of the last. Miami country, &c.
1016. A. elatior, *Linn.* Roman wormwood. Ragweed. Hogweed. Aug.–Sept. *g* & *y.* 1 to 5 f. ⊙. Fields. W.

1017. A. artemisifolia, *Linn.* Aug.–Sept. 4 to 6 f. ⊙. Fields. Penn. to Mississippi. *Bk.*
1018. A. tomentosa, *Nutt.* 18 i. ♃. Mo. Ter. *Nutt.*
1019. A. bidendata, *Michx.* Jul.–Sept. ⊙. Alleghany Mts. W. to Ill. *Bk.*
1020. Xanthium strumarium, *Linn.* Clot-weed. Clot-burr. Aug.–Sept. *g.* 2 to 6 f. ⊙. cf. rd. W.
1021. Iva xanthifolia, *Nutt.* Aug. 5 to 6 f. ⊙. Arid soils, Fort Mandan, Mo. Ter. *Nutt.*
1022. I. axillaris, *Pursh.* Marsh elder. May. *y* & *g.* 6 to 8 i. ♃. Saline soils, Mo. Riv. *Nutt.*
1023. I. ciliata, *Pursh.* Jul. 2 f. ⊙. Natural meadows of Kentucky and Illinois. *Pursh.*
1024. Parthenium integrifolium, *Linn.* Nephritic plant. Cutting almond. Aug.–Sept. *w.* 1 to 2 f. ♃. Near St. L. *Nutt.* The root is by some regarded as a most valuable diuretic in ischuria. Figured and described in the Eclectic Journal of Science, ii. 279.

SUB-ORDER VIII. ANTHEMIDEÆ.—May-weed like.

1025. Anthemis arvensis, *Linn.* Common chamomile. Aug.–Sept, *w* & *g.* ⊙. Waste grounds. Intr. Ky. *St.*
1026. A. cotula, *Linn.* May-weed. Dog fennel. May.–Sept. *w* & *g.* 1 f. ⊙. rd. &c. Intr. W. Emetic diaphoretic, antispasmodic. Wood and Bache. Raf. Med. Fl.
1027. Achillea millefolium, *Linn.* Yarrow. Milfoil. Aug.–Sept. *w.* 1 f. ♃. rd. ow. &c. W, Aromatic, bitter, astringent. Hoop. Dic.
1028. Tanacetum huronense, *Nutt.* Huron tansey. *y.* 4 f. ♃. Sandy shores of Lake Huron.
1029. T. vulgare, *Linn.* Tansey. Jul. *y.* 3 f. rd. Intr. O. Aromatic, bitter, anthelmintic. Wood and Bache.
1030. Artemisia canadensis, *Michx.* Wild wormwood. Jul.–Aug. *w* & *y.* 3 to 4 f. ♃. Sandy shores of Lake Erie. Plt. *Jas.* Many species of Artemisia are tonic, anthelmintic, &c. Wood and Bache, 109.
1031. A. longifolia, *Nutt.* ♃ & ♄. rs. Mo. Riv. *Nutt.*
1032. A. serrata, *Nutt.* ♃. 5 f. Banks of Miss. and Mo. Prairie du Chein. *Nutt.*
1033. A. columbiensis, *Nutt.* 6 to 12 f. ♄. Arid saline hills, Mo. Ter. *Nutt.*
1034. A. gnaphalioides, *Nutt.* Sept. Flowers brown. 1 to 2 f. Dry savannahs about Green Bay. *Nutt.*
1035. A. ludoviciana, *Nutt.* 2 f. ♃. St. L. *Nutt.*

1036. A. cernua, *Nutt.* 5 to 8 f. 4. Shrubby savannahs around St. L. &c. *Nutt.*
1037. A. sericea, *Willd.* A. frigida, *Pursh.* Oct. 4. Gravelly hills of the Missouri. *Nutt.*
1038. A. biennis, *Willd.* ♂. St. L. Isl. Michill. *Nutt.*
1039. A. cana. *Willd.* Sept. 4. On the Missouri. *Lewis.*
1040. A. santonica, *Willd.* Tartarian southernwood. Sept. 4. Plains of the Missouri. *Lewis.* Vermifuge. Wood and Bache, 110.
1041. A. caudata, *Linn.* Sept. 2 f. 4. Gravelly banks of the Missouri. *Michx.* Nuttall doubts the locality.

CLXXXIX. *STELLATÆ.*—The madder tribe.

Most of the species seem to possess diuretic qualities.

1042. Galium trifidum, *Linn.* Small cleavers. June–Jul. *w.* Assurgent. 4. Wet fields, Ky. *St.*
1043. G. tinctorium, *Linn.* Wild madder. Dyer's cleavers. June–Aug. *w.* 1 f. 4. sw. Wet woods, O. Ky. The root contains a red colouring matter; used in dying.
1044. G. obtusum, *Big.* Jul. *w.* 12 to 18 i. 4. mh. wp. Wet woods. O. Ky.
1045. G. asprellum, *Michx.* Rough bed-straw. June–Sept. *w.* 1 to 4 f. 4. O. Ky. Used as a diuretic.
1046. G. triflorum, *Michx.* Jul–Aug. *w.* Procumbent, 3 to 5 f. long. 4. Moist woods. Ky. *St.*
1047. G. aparine, *Linn.* Goose-grass. Cleaver weed. May-June. *w.* 3 to 4 f. ☉. Woods, &c. W. Diuretic. Eberle. West. Med. Gaz. Vol. i. Hoop. Dic.
1048. G. micranthum, *Pursh.* Jul. *w.* 10 i. 4. Mountain swamps. *Pursh.* Woods, O.
1049. G. circæzans, *Michx.* Wild liquorice. June–Jul. *p.* 1 f. 4. rs. sw. O. Ky. Demulcent, expectorant, diuretic. The root tastes like liquorice.
1050. G. lanceolatum, *Torr.* Jul. *p.* 12 to 18 i. 4. rs. sw. West Va. *Paddock.*
1051. G. puncticulosum, *Michx.* G. bermudianum, *Pursh.* June. *p.* 4. Wet places. St. L. *Bk.*
1052. G. boreale, *Pursh.* Aug. *w.* 12 to 18 i. 4. Sandy woods. Ky. *St.*
1053. G. pilosum, *Ait.* Jul.–Aug. *p.* 1 f. 4. Woods. Mar. O.

CXC. *CINCHONACEÆ.*—The cinchona tribe.

Generally possessed of powerfully febrifugal or emetic qualities. Lind. Nat. Syst. 202.

1054. Cephalanthus occidentalis, *Linn.* Button bush. Jul.-

Aug. *w.* 4 to 10 f. ♄. wp. Borders of ponds. W. Medicinal. Raf. Med. Fl. i. Tonic, expectorant. Elliott i. 187.

1055. Spermacoce glabra, *Michx.* June. *w.* ☉. Ky. *St.*

1056. Mitchella repens, *Linn.* Partridge berry. June–Jul. *w.* Creeping evergreen, 4 to 8 i. long. ♃. rs. sw. W. Berries red, edible. By some it is regarded as expectorant and emenagogue. It is said the Indians used it as a preparatory parturient.

CXCI. *CAPRIFOLIACEÆ.*—THE DOG-WOOD TRIBE.

1057. Lonicera flava, *Sims.* Yellow honey-suckle. June–Jul. *y.* Twining shrub. Cattskill Mts. *Bk.* Darby Plains, O?

1058. L. parviflora, *Lam.* Woodbine. June–Jul. *y.* Twining shrub. rs. Ky. *St.* Mo. Ter. *Nutt. Jas.*

1059. Diervilla canadensis, *Muhl.* Bush honey-suckle. June. *y.* 2 to 3 f. ♄. rs. Diuretic in gonorrhœa. See Hoop. Dic. Art. Lonicera diervilla, *Linn.*, a synonym.

1060. Linnæa borealis, *Gron.* Twin-flower. Jul. *w* or pale *r.* Creeping evergreen. 9 i. high. Woods and hills. Near Lake Huron. *Nutt.*

1061. Triosteum perfoliatum, *Linn.* Fever-wort. Horse gentian. June. *p.* 2 to 3 f. ♃. rs. dp. &c. W. Cathartic, emetic, diuretic. Bart. i. 59. Big. i. 90.

1062. T. angustifolium, *Willd.* Jul. *y.* 2 to 3 f. ♃. Ky. *St.*

1063. Symphoria racemosa, *Pursh.* Snow-berry. Jul. *w–r.* 2 to 3 f. ♄. Rocky hills. Ky. *St.* Mo. *Nutt.* Near Cin. O.

1064. S. glomerata, *Pursh.* Jul.–Aug. *r* & *y.* 3 to 4 f. ♄. Sandy fields. Ky. *St.* Tenn. *Nutt.* Mo. *Jas.*

1065. Viburnum prunifolium, *Linn.* Black haw. June. *w.* 8 to 15 f. ♄. Borders of prairies. Woods. W. Fruit in Oct., sweet and pleasant, dark blue. Bark tonic and astringent.

1066. V. lentago, *Linn.* Sheep berry. June. *w.* 10 to 15 f. ♄. Fruit black. rs. Banks of streams. O. Ky.

1067. V. dentatum, *Linn.* Arrow-wood. June. *w.* 8 f. ♄. Fruit blue. Moist woods. Ky. *St.*

1068. V. pubescens, *Pursh.* June. 6 f. ♄. dp. &c. O. Ky.

1069. V. acerifolium, *Linn.* Dockmackie. May.–June. *w.* 4 to 6 f. ♄. Fruit black. sw. O. Ky. The leaves were used by the Indians as an external application to inflammatory tumours. Eat. Man. Bot.

1070. V. oxycoccus, *Pursh.* High cranberry. May–June. *r–w.* 5 to 8 f. ♄. Fruit red. Banks of streams, &c. Near Lake Sup. *Houghton.*

1071. V. molle, *Michx.* June. ♃. Berries red. Hedges near Danville, Ky. *Michx.* Tenn. &c. *Pursh.*

1072. V. lantanoides, *Michx.* Hobble bush. May–June. *w.* 4 to 8 f. ♄. Fruit black, edible. Mountain woods. Said to grow on the high lands of West. Penn.

1073. Sambucus canadensis, *Linn.* Elder. Sweet elder. June–Jul. 5 to 10 f. ♄. Fruit deep purple. bt. &c. W. Flowers sudorific, berries diaphoretic, aperient, alterative; bark cathartic, emetic. Wood & Bache, 560.

1074. S. pubens, *Michx.* Red elder. May–June. *w.* 6 to 8 f. ♄. Fruit red. Fields, &c. Miami country.

1075. Cornus florida, *Linn.* Dogwood. May–June. *w.* 15 to 20 f. ♄. Fruit scarlet. Woods. W. Excellent tonic. The small twigs make the best of tooth-brushes. The bark of the fibrous roots was used by the Indians in dying scarlet. Bart. Med. Bot. i. 51, 120. Big. ii. 73.

1076. C. sericea, *L'Herit.* Red osier. June. *w.* 5 to 10 f. ♄. Fruit blue. Banks of streams. W. Tonic, astringent. Bart. i. 115. Obviates vomiting. Beach, Mat. Med.

1077. C. circinata, *L'Herit.* June–Jul. *w.* 6 to 8 f. ♄. Fruit blue. Banks of streams. Wor. O. Tonic, astringent. Wood and Bache, 225.

1078. C. paniculata, *L'Herit.* Prairie cornel. Jul. *w.* 6 to 10 f. ♄. Fruit white. wp. Barrens, O.

1079. C. alba, *L'Herit.* Green osier. May–Jul. *w.* 6 to 10 f. ♄. Fruit white. Wet woods. O. Ky. An infusion of the bark of the young twigs, will allay vomiting.

1080. C. alternifolia, *Linn.* June. *w.* 15 to 20 f. ♄. Fruit purple. sw. Germantown, O. *Frank.*

1081. C. asperifolia, *Michx.* Rough-leaved cornel. June. *w.* 4 to 10 f. ♄. Sandy soils. Wheeling, Va.(?)

1082. C. canadensis, *Linn.* Low cornel. May–June. *r–w.* 6 i. ♃. Fruit red. Louisville. *M'Murt.*

1083. Hydrangea vulgaris, *Pursh.* Hydrangea. Jul.–Aug. *w.* 5 f. ♄. Hill sides. rs. O. Ky.

1084. H. cordata, *Pursh.* Heart-leaved hydrangea. June–Jul. *w–r.* 4 to 6 f. ♄. rs. In ravines, &c. O. Ky.

CXCII. *LORANTHEÆ.*—THE MISLETOE TRIBE.

1085. Viscum verticillatum, *Nutt.* Misletoe. Ap.–May. (*Ell.*) Nov.? *g–w.* 1 to 2 f. ♄. An evergreen parasite, on the elm, the oak, the honey locust, &c., near large rivers. W. Ohio river as far as Marietta. Bark astringent. Lind. Nat. Syst. 206.

CXCV. *ASCLEPIADEÆ.*—The milkweed tribe.

1086. Asclepias syriaca, *Linn.* Silgrass. Milkweed. Jul.–Aug. *w–p.* 2 to 4 f. 4. rd. bt. W. Medicinal, like 1094. Wood and Bache, 114.

1087. A. obtusifolia, *Michx.* June. Pale *p.* 2 to 3 f. 4. Sandy fields. Plt. *Jas.* Woods near St. L. *Bk.*

1088. A. phytolaccoides, *Pursh.* Pokeweed silgrass. June.–Jul. *g–p.* 3 to 4 f. 4. Wet rocky grounds. O. Ky. Medicinal, like 1094.

1089. A. amœna, *Willd.* Jul. 2 to 3 f. 4. wp, &c. Wor. O. Ky.

1090. A. incarnata, *Linn.* Jul.–Aug. *r–p.* 2 to 4 f. 4. wp. Banks of streams, O. Ky. Medicinal. See 1094. Wood and Bache, 114.

1091. A. variegata, *Linn.* Jul.–Aug. *w.* 3 to 4 f. 4. Woods. Ky. *St.* Louisville. *M'Murt.*

1092. A. verticillata, *Linn.* June–Jul. *y–w.* 2 to 3 f. 4. Dry hills. dp. O. Ky.

1093. A. angustifolia, *Ell.* May. *g–w.* 8 to 18 i. 4. wp. Scott's Plains, Franklin Co. O.

1094. A. tuberosa, *Linn.* Pleurisy root. Jul.–Aug. *Orange.* 2 to 3 f. 4. Sandy fields. dp. W. Diaphoretic, expectorant, mild aperient. Big. Med. Bot. ii. 59. Bart. i. 239. Antidysenteric. Eberle's Practice, i. 216.

1095. A. quadrifolia, *Jacq.* June. *w* and *r–w.* 1 to 2 f. 4. rs. sw. O. Ky. Medicinal, like the last.

1096. Acerates viridiflora, *Raf.* Green milkweed. July. *g.* 2 f. 4. Sandy fields. Ky. *St.* W. *Bk.*

1097. Podostigma viridis, *Walt.* May. *g* and *p.* 4. Siliceous hills, Missouri. *Bk.*

1098. Enslenia albida, *Nutt.* Jul. *y–w.* Twining. 4. rb. bt. &c. O. Ky. The leaves resemble those of a convolvulus.

1099. Gonolobus hirsutus, *Michx.* June–Jul. *p.* Trailing and climbing, 3 to 4 f. 4. Hedges near streams. (*Bk.*) Ky. *St.*

1100. G. viridiflorus, *Nutt. g.* Twining. Banks of the Miss. near St. L. *Nutt. Jas.*

1101. G. macrophyllus, *Michx.* June–Aug. *y.* Twining. Light soils. Ky? *St.* The root acts on the bowels in a manner similar to colocynth. Ell. Bot. i. 328.

CXCVI. *APOCYNEÆ.*—The Indian hemp tribe.

1102. Apocynum cannabinum, *Linn,* Indian hemp. June-

Jul. Greenish *w.* 2 to 3 f. ♃. O. Ky. Emetic, cathartic, diuretic, diaphoretic, expectorant. *Knapp*, in Am. Med. Rev. 197. Am. Jour. Med. Sci. for 1833.

1103. A. androsæmifolium, *Linn.* Dog-bane. Wandering milkweed. June–July. Pale *r.* 2 to 4 f. ♃. Fields, &c. O. Emetic, &c. Big. ii. 148. Raf. Med. Fl. i.

1104. A. hypericifolium, *Ait.* St. John's dog-bane. Ju–Jul. Greenish *w.* 1 to 2 f. ♃. rb. Gravelly banks, &c. O. Ky. Medicinal.

1105. A. pubescens, *Brown.* June–Jul. Greenish *w.* 2 to 3 f. ♃. dp. Fields. Wor. O. Medicinal, like 1102, to which it is closely allied.

1106. Amsonia latifolia, *Pursh.* April–May. *b.* 2 f. ♃. Damp soils. Ky. *St.*

CXCVII. *GENTIANEÆ.*—The gentian tribe.

A bitter quality resides in the stems and roots of these plants, which renders them tonic, stomachic and febrifugal. Lind. Nat. Syst. 214.

1107. Gentiana saponaria, *Linn.* Soapwort gentian. Sept.-Oct. *b.* 1 to 2 f. ♃. wp. O. Ky. Dr. Beck says this is identical with the G. catesbæi of Walter. Tonic. Big. Med. Bot. ii. 127. Figured also, Bart. Fl. N. A. iii. 23.

1108. G. ochroleuca, *Willd.* Aug.–Sept. Yellowish *w.* 1 f. ♃. Sandy fields. Ky. *St.* Brushy Prairie, O. *Van Cleve.*

1109. G. quinqueflora, *Willd.* Five-flowered gentian. Aug.-Sept. *b.* 1 f. ♂. Woods. O. Ky. Tonic. See 1107. Raf. Med. Fl. i.

1110. G. crinata, *Willd.* Fringed gentian. Oct. *b.* 18 i. ♂. wp. O. Tonic. Figured, Bart. Fl. N. A, iii. 27.

1111. G. acuta, *Michx.* Nutt. i. 172. Aug.–Sept. *g–p.* 1 f. ☉. Plains, Mo. Ter. near Fort Mandan. *Nutt.*

1112. Houstonia cœrulea, *Linn.* Venus' pride. Ap.–June. *b–w.* 4 to 8 i. ♃. ow. &c. O. Ky.

1113. H. longifolia, *Willd.* June. *p.* 6 to 10 i. ♃. dp. Near Middletown, O. Ky. Wet prairies near St. L. *Bk.*

1114. H. purpurea, *Willd.* June–Aug. *p.* 4 to 8 i. ♃. Dry woods. Mar. O. Ky. *St.* Ill. *Bk.*

1115. H. ciliolata, *Torr.* June–Jul. *r–b.* and *w–b.* 2 to 4 i. ♃. rs. sr. Wor. O. St. L. *Bk.* Ky. *St.* Mich.

1116. H. pubescens, *Raf.* May–June, Pale *b.* or *w.* 4 to 8 i. seldom 1 f. ♃. Argillaceous soils, Miami country. West Va.

1117. H. tenuifolia, *Nutt.* 6 i. Dry gravelly hills, Pidgeon river, Tenn. *Nutt.*
1118. H. minima, *Bk.* March. *b.* 1 to 2 i. ⊙? St. L. *Bk.*
1119. Menyanthes trifoliata, *Linn.* Buck-bean. May. *w–r.* 8 to 12 i. ♃. mh. Louisville. *M'Murt.* Tonic, cathartic. Big. iii. 55. Wood & Bache, 415.
1120. Obolaria virginica, *Linn.* Penny-wort. Ap.–May. *w*, or *w–r.* 4 to 6 i. ♃? Woods. Ky. *St.* West Va.
1121. Sabbatia angularis, *Pursh.* American centaury. Aug. *Rose coloured.* 1 to 2 f. ⊙ & ♂. Wet meadows, *Bk.* New dry fields. W. Tonic, stomachic. Big. iii. 147.
1122. S. gracilis, *Salis.* July. *r.* ♂. 1 f. Ky. *St.*
1123. Frasera walteri, *Michx.* American columbo. July. *g–y.* 3 to 6 f. ♂. dp. Barrens. W. Excellent bitter, emetic and cathartic if recent. Bart. ii. 103. If I mistake not, it was first introduced to the notice of the medical profession by Dr. Samuel P. Hildreth, of Marietta, O.

CXCVIII. *SPIGELIACEÆ.*—The pink-root tribe.

1124. Spigelia marilandica, *Linn.* Pink-root. June. *Crimson.* 9 to 18 i. ♃. Woods. Vermifuge, cathartic, narcotic. Bart. ii. 80. Big. i. 143.

CXCIX. *CONVOLVULACEÆ.*—The scammony tribe.

The roots of these plants abound in an acrid milky juice, which is strongly purgative. Lind. Nat. Syst. 216.

1125. Convolvulus arvensis, *Linn.* Bind-weed. June–July. *w.* Prostrate and climbing. ♃. Fields. Ky. *St.*
1126. C. nil, *Linn.* Aug. *w & b.* Twining. ⊙. Intr. O.
1127. C. repens, *Linn.* June. *w*, tinged with *r.* Twining, ♃. bt. mh. Swamps, &c. O. Ky.
1128. C. sepium, *Linn.* (June–July. *w.* Twining, climbing. ♃. Hedges and woods.) *Bk.* Aug. dp. cf. Near Middletown, O.
1129. C. panduratus, *Linn.* Man of the earth. Jul. *w* & *r.* (*p. Beck.*) Climbing, &c. ♃. Sandy fields. Ky. *St.* Root purgative, diuretic. Bart. i. 252.
1130. C. macrorhizus, *Michx.* Jul.–Aug. (*w*, tinged with *p. Ell.*) *w*, centre *p.* Twining. ♃. Sandy soils. dp. cf. &c. O. Ky. Root large, mildly aperient.
1131. C. spithameus, *Linn.* June. *w.* Generally erect, 1 f. ♃. Sandy woods. Ky. *St.* Near Cin. O. *N. Longworth Esq.*
1132. C. purpureus, *Linn.* Morning glory. Jul.–Aug, *b* or *p.*

Climbing. ⊙. Grows west of the Mississippi. *Eat.* Intr. *Bk. Ell.*

1133. C. tenellus, *Linn.* June–Sept. *w.* Prostrate. ♃. Dry sandy soils, *Ell.* rs. On argillaceous cliffs, two miles north of Worthington, O.

1134. C. micranthus, *mihi.* Small-flowered morning glory. *Root* fusiform and branching, 2 to 4 lines in thickness, flavoured like 1130: *stem* prostrate and twining, 3 to 8 feet long, glabrous: *leaves* broad cordate acuminate, either entire or with one or two lateral teeth or projecting lobes; mealy and subpubescent on both sides, commonly less than 2½ inches long by 2 in width: *petioles* glabrous, 2 to 3 inches long: *peduncles* half as long as the petiole, smooth, with 2 minute subulate bracts near the middle: *flowers* axillary solitary or in pairs: *calyx* 5-leaved or 5-parted, divisions lance-ovate membranaceous slightly awned; two outer sepals ciliate: *corolla* funnel-form, white, near half an inch in length and breadth, twice as long as the sepals. Juice milky. Flowers, Aug.–Sept. ⊙. Fertile woods and prairies, cultivated fields, bt. &c. Miami country. (Closely allied to C. lacunosus, *Spreng.?* perhaps identical with it.)

1135. Evolvulus argenteus, *Pursh.* May. *p.* Erect. 4 to 6 i. ♃. Arid gravelly hills, Mo. Ter. *Nutt.*

1136. Cuscuta americana, *Linn.* American dodder. June–Jul. *w.* Twining parasite, 2 to 3 f. ⊙. Low grounds, W. Yellow and leafless.

CC. *POLEMONIACEÆ.*—The Greek valerian tribe.

1137. Polemonium reptans, *Linn.* Greek valerian. Sweat-root, of Howard. May. *b.* 1 f. ♃. sw. W. The root is said to be an excellent sudorific. See Howard's works.

1138. Phlox paniculata, *Linn.* Lichnidia. June–Jul. *p.* 2 to 3 f. ♃. md. bt. W.

1139. P. pyrimidalis, *Smith.* Aug. *p.* 2 to 3 f. ♃. Mountain meadows, *Bk.* Ky. *St.*

1140. P. maculata, *Linn.* June–Nov. *w–p.* 2 to 3 f. ♃. wp. mh. O. Ky. *St.*

1141. P. aristata, *Michx.* June. *w–p*, or *w.* 18 i. ♃. Wet woods. Ky. *St.* Banks of the Ill. Bk. O. Dr. Beck says the P. pilosa is not distinct from this.

1142. P. divaricata, *Linn.* Called *Sweet-William* in Ohio. Ju. *b.* 9 to 12 i. ♃. (*p.* Woods. W.)

1143. P. reptans, *Michx.* June. *b & p.* 6 to 8 i. 4. Argillaceous hill sides. O. Ky.
1144. P. subulata, *Linn.* Mountain pink. Ap.–May. *r & p.* Procumbent, 3 to 4 i. high. 4. Rocky hills, Ky. *St.*
1145. P. setacea, *Linn.* May. *r & p.* Procumbent, 4. O. Ky.
1146. P. nitida, *Pursh.* June–Aug. *p.* 18 to 24 i. 4. ow. Near Duncan's Plains, O.
1147. P. cordata, *Ell.* Aug. 1 to 2 f. Ky. *St.*
1148. P. glaberrima, *Linn.* June–Jul. *p.* 1 to 2 f. 4. Pine barrens, *Ell.* Ky. *St.*
1149. P. bifida, *Bk.* Ap. *p.* 4 to 6 i. Near Fort Clark, Mo. *Bk.*
1150. Collomia linearis, *Nutt.* June. *w–p.* 4 to 12 i. ☉. Banks of the Missouri, near Shian river. *Nutt.*

CCI. *HYDROLEACEÆ.*

1151. Diapensia cuneifolia, *Salis.* June. *w.* ♄. Near the Platte river. *Jas.*

CCII. *EBENACEÆ.*—The ebony tribe.

1152. Diospyros virginiana, *Linn.* Persimmon. May. *g–y.* 20 to 40 f. ♄. Woods. W. Bark bitter, astringent, febrifugal. Wood & Bache, 274. Michx. Sylv. Am. ii. 219. Fruit styptic until matured by frost. It is then rather pleasant.

CCV. *OLEACEÆ.*—The olive tribe.

1153. Ligustrum vulgare, *Linn.* Prim. Privet. May–June. *w.* 4 to 6 f. ♄. Woods, W. *Bk.*
1154. Chianothus virginica, *Linn.* Fringe tree. May–June. *w.* 6 to 10 f. ♄. Mts. &c. Ky. *St.* O. *Frank.*
1155. Fraxinus acuminata, *Lam.* White ash. May. 50 to 60 f. ♄. Woods. W. Timber light and valuable for many purposes. The bark has much vague celebrity for its reputed medicinal virtues. It is said to be an antidote for snake bites, to remove splenic enlargements, &c.
1156. F. sambucifolia, *Willd.* Black ash. Ap. Large tree. Swamps. O. Ky. It makes most durable rails. The Indians used to make brooms from the saplings.
1157. F. quadrangulata, *Willd.* Blue ash. May. Very large tree. W. Timber valuable; used much in making floors. Bark medicinal.?
1158. F. juglandifolia, *Lam.* Swamp ash. May. A small tree. Central Ohio.

CCVII. *PRIMULACEÆ.*—THE PRIMROSE TRIBE.

1159. Primula farinosa var. americana, *Torr.* Bird's-eye primrose. Pale *p.* 6 to 12 i. 4. Shores of Lake Huron and Sup. *Nutt. Houghton.*

1160. Androsace occidentalis, *Pursh.* Ap. *w.* 1 to 3 i. ⊙. Dry elevated plains, Mo. Ter. *Nutt.* Plt. *Jas.*

1161. Dodecatheon integrifolium, *Michx.* Pride of Ohio. May–June. Pale *b.* 18 i. 4. Borders of a marsh, 7 miles north of Cincinnati. Yellow Springs, O. Mo. Ter. *Lewis.*

1162. D. meadia, *Linn.* False cowslip. May–June. *p.* 8 to 12 i. 4. rs. Ky. *St.* Ill. Prairies of St. L. *Bk.*

1163. Hottonia inflata, *Linn.* Water feather. Jul. *w.* (6 to 10 i)? 4. Stagnant waters. Lagoons of the Licking, Ky. *St.*

1164. Lysimachia ciliata, *Linn.* Money-wort. Jul. *y.* 2 to 3 f. 4. bt. &c. W. Plants of this genus were formerly reputed to be vulnerary, antiscorbutic, &c. See Boerhaave.

1165. L. stricta, *Ait.* L. racemosa, *Michx.* Upright loose-strife. Jul.–Aug. *y.* 12 to 18 i. 4. Low grounds. Dayton. O. *Eberle.*

1166. L. quadrifolia, *Linn.* June–Jul. *y.* 12 to 18 i. 4. Low grounds. O. Ky.

1167. L. revoluta, *Nutt.* Prairie money-wort. July–Aug. Golden *y.* 12 to 18 i. 4. wp. (rs. *Bk.*) Shores of the great lakes. N. W. Ter. *Hough.* Central Ohio.

1168. L. quadriflora, *Sims.* L. longifolia, *Pursh.* June–Jul. *y.* 18 i. 4. wp. Ky. *St.* Hoffman's wet grassy prairie, near Dayton, O. (2 to 3 f. Wet woods, *Pursh.*)

1169. L. hybrida, *Michx.* July. *y.* Simple, 2 f. 4. Grassy prairies, Central Ohio. Ky.

1170. L. heterophylla, *Michx.* June–July. *y.* Branching near the bottom. 12 to 18 i. 4. Hills, ow. near Cincinnati. Hardly distinct from the preceding, except in habit.

1171. L. capitata, *Pursh.* June. *y.* 1 f. 4. Swamps, &c. Ohio, shores of Lake Erie. *Nutt.*

1172. L. nummularia, *Linn.* Creeping loose-strife. June–July. 4. Shady places. (*Hooker.*) Calcareous banks of Lake Michigan. (?) *Nutt.*

1173. Anagallis arvensis, *Linn.* Scarlet pimpernel. Jul. *r.* Procumbent, 4 to 6 i. ⊙. Fields. Intr? Ohio. Louisville. *M'Murt.* One of the reputed specifics for hydrophobia. Eberle's Pract. Med. 2d ed. ii. 143.

1174. Centunculus minimus, *Nutt.* Bastard pimpernel. Jul. 4 to 6 i. Margins of ponds, Mo. Ter. *Nutt.*
1175. Samolus valerandi, *Linn.* Water pimpernel. July–Sept. *w.* 6 to 12 i. ♃. Wet grounds. rb. W.

CCVIII. *LENTIBULARIÆ.*—THE BLADDER WORT TRIBE.

1176. Utricularia macrorhiza, *Le Conte.* U. vulgaris, *Pursh.* Bladder wort. Aug.–Oct. *y.* Scape 4 to 8 i. Shoots or roots long, floating in stagnant pools. Lockbourne, Dayton, O. Ky.
1177. U. ceratophylla, *Michx.* Jul.–Aug. Scape 8 i. Root long, floating. ♃. pl. O.?
1178. U. cornuta, *Michx.* Aug. *y.* Scape 10 i. ♃. Wet rocks. Lake Sup. *Hough.*
1179. U. purpurea, *Walt.* Aug. *p.* Scape 2 to 3 i. ♃. Ponds on mountains, *Bk.* N. W. Ter. *Hough.*

CCX. *OROBANCHEÆ.*—THE BROOM-RAPE TRIBE.

1180. Orobanche americana, *Linn.* Cancer-root. Jul. Whole plant brownish yellow. 6 to 8 i. ♃. Parasitic. In patches, on the roots of trees, in sw. W. Antiscirrhous?, astringent.
1181. O. uniflora, *Linn.* Squaw-root. May–Jul. *b–w.* 4 to 6 i. ♃. Parasitic, yellowish white. sw. W. Figured in Bart. Fl. N. A.
1182. Epiphegus virginianus, *Eat.* Beech-drops. Jul.–Sept. *w & p.* 8 to 12 i. ♃. A leafless, brownish yellow parasite, on the roots of the beech tree. W. Astringent, &c. Eber. Mat. Med. i. 355. Antiscirrhous.? Bart. ii. 38.

CCXI. *SCROPHULARINEÆ.*—THE FIGWORT TRIBE.

§ I. *Veroniceæ.* Speedwell like.

1183. Veronica officinalis, *Linn.* Speedwell. June. Pale *b.* 6 to 12 i. ♃. Dry woods, &c. Central Ohio. Alterative, antiscorbutic. Wood & Bache, 661.
1184. V. serpyllifolia, *Linn.* Thyme-leaved speedwell. May–Aug. Pale *b.* Procumbent, 3 to 5 i. br. Wet argillaceous soil. Intr. *Bk.* O. Ky.
1185. V. anagallis, *Linn.* Water speedwell. June–Aug. *b.* 1 to 2 f. ♃. mh. Ditches, &c. O. Ky.
1186. V. scutellata, *Linn.* Scull-cap speedwell. May. Pale *r.* 1 to 2 f. (6 to 12 i. Intr. *Bk.*) ♃. wp. Seemingly indigenous, in the wildest marshes and prairies, O.

1187. V. arvensis, *Linn.* Small speedwell. May. Pale *b.* ☉. Fields. Intr. O. Ky.
1188. V. agrestis, *Linn.* May. Pale *b.* 3 to 9 i. ☉. Intr. Sandy fields. O. Ky.
1189. V. peregrina, *Linn.* Wandering speedwell. May–Jul. *w*, or *w–b.* ☉. Argillaceous soil. O. Ky.
1190. V. reniformis, *Pursh.* June. *b.* Creeping. ♃. Banks of the Missouri, *Pursh.*
1191. Leptandra virginica, *Nutt.* Black-root. Culver's physic. Jul.–Aug. *w*, or pale *r.* 2 to 4 f. ♃. Woods, &c. Cathartic, sudorific, alterative. Wood & Bache, 661. Beach's Mat. Med.

§ 2. *Erinaceæ.*

1192. Buchnera americana, *Linn.* Blue hearts. Jul. *b.* 12 to 18 i. ♃. Sandy places. Prairies near St. L. *Bk.*

§ 3. *Scrophularieæ.*—Figwort like.

1193. Scrophularia marilandica, *Linn.* Figwort. June–July. *Greenish brown.* 3 to 6 f. ♃. bt. &c. W. Like the foreign S. nodosa to which it is closely allied, it would doubtless prove a useful application to scrofulous tumours, hæmorrhoids, &c.
1194. Antirrhinum linaria, *Linn.* Toad-flax. June–Oct. *y* and *orange.* 1 to 2 f. ♃. rd. Intr. O. Ky. Diuretic. cathartic, resolvent. Hoop. Dic.
1195. A. canadense, *Linn.* Flax snap-dragon. June–Aug. *b.* 6 to 12 i. ☉. Low grounds, Louisville. *M'Murt.*
1196. Mimulus ringens, *Linn.* Monkey flower. Aug. Pale *p.* 2 f. ♃. Wet grounds. W.
1197. M. alatus, *Linn.* Aug. Pale *b.* 2 f. ♃. Wet meadows. bt. br. W.
1198. Gratiola aurea, *Muhl.* Hedge hyssop. Jul.–Aug. *y.* 4 to 8 i. *Eat.* 1 to 2 f. *Bk.* ♃. Sandy swamps, &c. Ohio. *Eberle.* Allied to the foreigh G. officinalis, and like it, doubtless, possesses cathartic, emetic and diuretic properties. See Wood & Bache, 326.
1199. G. virginica, *Linn.* Jul.–Aug. *y–w.* 6 i. ♃. Inundated meadows. O. Ky.
1200. G. missouriana, *Bk.* June. *y.* 4 to 6 i. ♃. Near St. L. *Bk.*
1201. Lindernia attenuata, *Muhl.* Aug. *b.* 6 to 8 i. ☉. rb. &c. Ky. Central Ohio.
1202. L. dilatata, *Muhl.* Jul.–Aug. Pale *p.* 6 i. ☉. Inundated banks. W. Fig. Bart. Fl. N. A.
1203. Chelone glabra, *Linn.* Snake-head. Balmony. Aug.–

Oct. *w*, or *r–w*. 2 f. 4. wp. W. The leaves and flowers are used by the Thompsonians as a tonic. I believe they attribute other properties also to this plant.

1204. Pentstemon pubescens, *Linn.* Beard-tongue. June. Pale *p*. 1 to 2 f. 4. Hill-sides. W.

1205. P. lævigatum, *Linn.* June. Pale *p*. 1 to 2 f. 4. bt. ow. Ky. Miami country.

1206. P. gracile, *Nutt.* Slender beard-tongue. June. Pale *p*. Depressed soils. Mo. Ter. *Nutt.* Plt. *Jas.*

1207. P. cristatum, *Nutt.* *p*. 6 to 8 i. 4. Argillaceous hills. Plt. *Jas.*

1208. P. nuttallii, *Bk.* 2 to 3 f. Near St. L. *Bk.*

1209. P. albidum, *Nutt.* *w*. 6 to 8 i. Plt. *Nutt.*

1210. P. grandiflorum, *Nutt.* 3 f. Prairie du Chien. Plt. *Jas.*

1211. Collinsia verna, *Nutt.* Collinsia. June. *b & w*. 8 to 15 i. ☉. bt. &c. O. Ky. Figured, Jour. Acad. Nat. Sci. Philad. i. plate 9. Specimens of this beautiful plant were first communicated to Mr. Nuttall, by Dr. Drake of this city.

1212. Capraria multifida, *Michx.* Jul. *g–w*. 2 to 4 i. ☉. Sandy banks of rivers. W.

1213. Herpestris rotundifolia, *Michx.* Aug. *b*. Procumbent. Margins of ponds. *Ell.* Inundated banks of the Illinois river. *Pursh.*

1214. Gerardia flava, *Linn.* False foxglove. Aug.–Sept. *y*. 2 to 3 f. 4. Woods. O. Ky. W.

1215. G. glauca, *Eddy.* Aug.–Sept. *y*. 3 to 5 f. 4. Barrens. dp. W.

1216. G. pedicularia, *Linn.* Louse-wort foxglove. Jul.–Aug. *y*. 2 to 3 f. 4. Sandy woods or barrens, Mar. O. Ky. N. W. Ter.

1217. G. purpurea, *Linn.* Aug.–Oct. *p*. 1 to 2 f. ☉. (Fields and woods, *Bk.*) Wet prairies. O. Ky. Abundant 8 miles E. of Dayton.

1218. G. tenuifolia, *Linn.* Jul.–Sept. *p*. 6 to 18 i. ☉. cf. dp. Woods, &c. O. Ky.

1219. G. maritima, *Raf.* Jul.–Sept. *p*. 6 to 12 i. ☉. Salt marshes usually. Near Lake Mich. *Hough.*

1220. G. auriculata, *Michx.* Ear-leaf gerardia. Aug.–Sept. *p*, with dark red spots. 2 to 4 f. ☉. Prairie half a mile south of Middletown, O. (8 to 12 i. Rocky fields, *Beck* and others.) Illinois, *Pursh.* Louisville, *M'Murt.*

1221. Seymeria macrophylla, *Nutt.* Mullein foxglove. Jul. *y*. 4 to to 5 f. 4. Shady alluvial soils, O.

CCXII. *RHINANTHACEÆ.*—The rattle tribe.

1222. Pedicularis canadensis, *Linn.* Louse-wort. May–July. *y & p.* 8 to 10 i. ♃. Woods, &c. W.

1223. P. pallida, *Pursh.* Pale-flowered louse-wort. Sept. Pale *y.* 1 to 2 f. ♃. wp. mh. W.

1224. P. gladiata, *Michx.* May–June. *y & p.* 1 f. ♃. Wet meadows. Barrens near St. L. *Bk.*

1225. Melampyrum americanum, *Michx.* Cow wheat. June–July. *y.* 8 to 12 i. ☉. Woods. Louisville. *M'Murt.*

1226. Orthocarpus luteus, *Nutt.* July–Aug. *y.* 12 to 14 i. Humid situations. Mo. Ter. *Nutt.*

1227. Euchroma coccinea, *Nutt.* Painted-cup. May–June. Corol *y.* Bracts *r.* 8 to 12 i. ♃. Wet grounds. W.

1228. E. grandiflora, *Nutt.* Ap.–May. Corol *g–w.* Bracts *g.* ♃. Prairie du Chien. *Nutt.* Mo. Ter. *Jas.*

CCXIII. *SOLANEÆ.*—The night-shade tribe.

1229. Solanum nigrum, *Linn.* Common night-shade. July–Aug. *w.* 1 to 3 f. ☉. Old fields. W. Narcotic, emetic, diaphoretic, &c. Eberle's Mat. Med. ii. 75.

1230. S. caroliniense, *Linn.* Horse nettle. June. *w.* 1 f. ♃. Sandy banks. rd. W.

1231. S. dulcamara, *Linn.* Bitter-sweet. Woody night-shade. July–Aug. *p.* Climbing. ♄. Low grounds. W. Narcotic, alterative. Eb. Mat. Med. ii. 77. Big. Med. Bot. i. 169.

1232. S. triflorum, *Nutt.* July. *w.* 1 f. Mo. Ter. *Nutt.* The exotic species S. tuberosum, (potato,) and S. lycopersicum (tomatoes) are every where cultivated.

1233. Physalis obscura, *Michx.* Aug. *y & p.* 1 to 2 f. ☉. Hills, &c. O. Ky.

1234. P. viscosa, *Linn.* Ground cherry. July–Aug. *y.* 2 to 3 f. ♃. rd. W.

1235. P. pennsylvanica, *Linn.* July–Sept. *y.* 1 f. ♃. Berries red. rd. &c. W.

1236. P. lanceolata, *Linn.* Narrow-leaved ground cherry. July. Pale *y.* 1 to 2 f. ♃. bt. rd. Miami country.

1237. P. pubescens, *Willd.* July. *y.* ☉. Rocky banks of the Miss. *Bk.*

1238. P. philadelphicum, *Lam.* July. *y & p.* ☉. West Va. *Paddock.*

1239. Nicandra physaloides, *Pers.* July–Aug. Pale *b.* 2 to 3 f. ☉. cf. Intr. O. Ky.

1240. Nicotiana rustica, *Linn.* Tobacco. July. *g–y.* 12 to 18 i. *Bk.* ☉. Intr? Cultivated by the Indians of the Mississippi and Missouri. *Nutt.*

1241. N. tabacum, *Linn.* Virginian tobacco. July. *w–r.* 3 f. ⊙. Intr? Naturalized in Tenn. *Nutt.* Narcotic, emetic, diuretic. Big. ii. 171.

1242. N. quadrivalvis, *Pursh.* July. *b–w.* 1 to 2 f. ⊙. Cultivated by the Western Indians. *Nutt.*

1243. Datura strammonium, *Linn.* Thorn-apple. Jamestown-weed. July–Sept. *b & w.* 2 to 5 f. ⊙. rd. &c. Narcotic. Big. i. 17.

b. var. tatula, *Torr.* Stem and flowers purple. W.

1244. D. metel, *Linn.* Aug. *w.* 3 to 4 f. ⊙. Intr. Ohio banks. Dr. Locke informs me that the seed has doubtless been transported by the waters of the river, from Pittsburgh, where the plant was some years since cultivated in a garden.

1245. Hyoscyamus niger, *Linn.* Henbane. June. *y & p.* 12 to 18 i. ⊙. or ♂. Waste places. Naturalized near Detroit. *Eat.* Narcotic, diaphoretic, diuretic, laxative. Big. i. 161.

1246. Androcera lobata, *Nutt.* July–Aug. ⊙. Arid soils. Plt. *Nutt.*

1247. Verbascum thapsus, *Linn.* Mullein. June. *y.* 3 to 6 f. ♂. rd. W. Demulcent, emollient. Woodville Med. Bot. 202. Some practitioners in Ohio, regard it as a valuable diuretic in gonorrhœa.

1248. V. blattaria, *Linn.* Moth mullein. June–July. *w, w & r,* or *y.* 2 f. ♂. rd. bt. W.

1249. V. lychnitis, *Linn.* June–July. Pale *y.* ♂. Louisville. *M'Murt.*

CCXIV. *ACANTHACEÆ.*—The justicia tribe.

1250. Justicia pedunculosa, *Michx.* Justicia. Water-willow. July–Aug. *r & w.* (Pale *p. Bk.*) 2 f. ♃. rb. In water. W.

1251. J. brachiata, *Pursh.* July. *r.* ♃. Ark. riv. *Jas.*

1252. Ruellia strepens, *Linn.* Herb ruel. July. *b & p.* 1 to 2 f. ♃. bt. ow. W. The leaves are subacrid. Ainslie. ii. 153.

1253. R. oblongifolia, *Michx.* July.–Oct. *b & p.* 8 to 12 i. ♃. dp. Central O.

1254. R. ciliosa, *Pursh.* June-Sept. *w & p.* 3 to 24 i. ♃. Banks of the Miss. *Bk.*

CCXV. *PEDALINEÆ.*—The oil-seed tribe.

1255. Martynia proboscidea, *Linn.* Unicorn plant. Aug.–Sept. *y & br.* 1 to 2 f. ⊙. River banks. W.

CCXVII. *BIGNONIACEÆ.*—THE TRUMPET-FLOWER TRIBE.

1256. Bignonia radicans, *Linn.* Trumpet-flower. July–Aug. *r.* Creeping on trees, &c. 30 to 70 f. ♄. bt. Banks of streams. W.

1257. B. capreolata, *Michx.* Ap. *r & y.* Climbing over small trees. ♄. Dry soils. Ky. *Eat.*

1258. Catalpa cordifolia, *Ell.* July. *w, y & p.* Sometimes 40 to 50 f. ♄. About old Indian encampments. W. Intr.? Wood durable.

CCXX. *VERBENACEÆ.*—THE VERVAIN TRIBE.

1259. Verbena stricta, *Vent.* Branchless vervain. July–Aug. *b.* 2 to 4 f. 4. rd. bt. Miami country. W.

1260. V. hastata, *Linn.* Vervain. July–Aug. *b.* 3 to 5 f. 4. Low grounds. W. Some of the Thompsonians regard this a useful medicinal agent, possessing emetic, cathartic, sudorific and tonic qualities.

1261. V. urticifolia, *Linn.* Nettle-leaf vervain. White vervain. July–Aug. *w.* 2 to 3 f. 4. rd. ow. W. Said to possess virtues similar to the last.

1262. V. spuria, *Linn.* Aug.–Oct. *b.* Decumbent, 1 to 2 feet long. ☉. Sandy fields. *Bk.* On slate hills and limestone rocks, Ill. Ky. *Pursh.*

1263. V. angustifolia, *Michx.* June–Aug. *b.* 1 f. 4. 4. Prairies near St. Louis mine district. *Bk.*

1264. V. bracteosa, *Michx.* July. *p.* 4. Ky. *St.* St. L. *Jas.*

1265. V. aubletia, *Linn.* May–Sept. *p.* Assurgent. 4. Rocky banks of the Miss. *Jas.*

1266. V. paniculata, *Lam.* July–Aug. *p.* 4 to 6 f. Louisville. *M'Murt.*

1267. V. caroliniana, *Linn.* May–July. 2 f. 4. Louisville. *M'Murt.*

1268. V. bipinnatifida, *Nutt.* June. *b.* 4. Lead mines of Missouri. *Jas.*

1269. Zapania nodiflora, *Lam.* Fog-fruit. July. *w.* Creeping, 6 to 8 inches long. Peduncle 4 to 6 i. 4. rb. bt. W.

1270. Z. lanceolata, *Pursh.* July. *w.* Creeping, 6 to 8 i. Peduncle 4 to 6 i. 4. Banks of streams. Plt. *Jas.*

1271. Z. cuneifolia, *Torr.* Procumbent? Peduncles long. Plt. *Jas.*

1272. Phryma leptostachya, *Linn.* Lopseed. July. *w–p.* 2 to 3 f. 4. sw. W.

CCXXI. *LABIATÆ.*—THE MINT TRIBE.

"Their tonic, cordial, and stomachic qualities, due to the

presence of an aromatic volatile oil and a bitter principle, are the universal feature of Labiatæ, which do not contain a single unwholesome or even suspicious species." Lind. Nat. Syst. 238.

§ I. *Menthoideæ.*—Mint like.

1273. Mentha piperita, *Linn.* Peppermint. July. *p.* 12 to 15 i. ♃. mh. &c. Native? near Worthington, O. Generally Intr. W. Aromatic, stimulant. Wood & Bache, 413.

1274. M. viridis, *Linn.* Spearmint. July–Aug. Pale *p.* 12 to 18 i. ♃. Wet grounds. O. Ky. Aromatic, stimulant, &c. Woodville's Med. Bot. 338. Diuretic?

1275. M. borealis, *Michx.* Northern mint. July–Aug. *w*, or pale *p.* 1 to 2 f. ♃. rb. Moist grounds. O. Ky.

1276. M. tenuis, *Michx.* Slender spearmint. June. *w.* 1 to 2 f. ♃. Low grounds. O. Ky.

1277. M. canadensis, *Linn.* Canadian mint. Aug.–Sept. Pale *p.* 1 f. ♃. Sandy soils. Prairies near St. L. *Bk.*

1378. M. arvensis, *Linn.* Field mint. July. Pale *p.* 1 f. ♃. Naturalized on Duncan's plains. O. (Cornfields. Smells like decayed cheese. *Hooker.*)

1279. Isanthus cœruleus, *Michx.* Isanthus. July–Aug. *b.* 1 f. ☉. rd. bt. dp. W.

1380. Lycopus virginicus, *Linn.* Bugle weed. June–Aug. *w.* 1 to 2 f. ♃. Wet places. rb. O. Ky. Mild narcotic, astringent, &c. Used to allay hæmoptysis. N. York Med. and Phys. Jour. i. 179.

1281. L. europæus, *Linn.* Water horehound. Aug. *w.* 1 to 2 f. ♃. Wet places. Astringent, &c.

§ 2. *Satureineæ.*—Rosemary like.

1282. Pycnanthemum incanum, *Michx.* Wild basil. July–Sept. Pale *r.* 2 to 3 f. ♃. Low fields. Mar. O. Ky.

1283. P. aristatum, *Michx.* July–Aug. *w.* 1 to 2 f. ♃. Woods. Tenn. *Bk.* Louisville. *M'Murt.* O. Ky. *Nutt.*

1284. P. lanceolatum, *Pursh.* July–Aug. *w & p.* 2 f. ♃. dp. O. Ky. Abundant on prairies up the Miami river.

1285. P. linifolium, *Pursh.* Virginian thyme. July–Aug. *w.* 1 to f. ♃. Prairies and woods. O. Ky. This fragrant plant is used medicinally by the inhabitants of Sandusky plains, O.

1286. P. pilosum, *Nutt.* June. 18 to 24 i. Prairies near St. L. *Bk.* Glades of Ky. and Tenn. *Nutt.*

1287. Thymus serpyllum, *Linn.* Wild thyme. July. *p* or *w.* Spreading. ♃. Naturalized in a few localities, O.

1288. Origanum vulgare, *Linn.* Marjoram. July–Sept. *w–p.*

8 to 12 i. 4. Louisville. *M'Murt.* Tonic, excitant, diaphoretic, emenagogue. Wood & Bache, 473.

1289. Hyssopus nepetoides, *Linn.* Giant hyssop. July. *y–w*, or *w–p.* 3 to 6 f. 4. ow. W.

1290. H. scrophularifolius, *Linn.* July–Aug. *p.* 2 to 4 f. 4. O. Ill.

§ 3. *Ajugoideæ.*—Germander like.

1291. Teucrium canadense, *Linn.* Wild germander. July–Aug. *w & r.* 2 to 3 f. 4. Thickets, low grounds. W.

1292. T. virginicum, *Linn.* Aug. 4. Low grounds. W. *Bk.*

1293. Trichostemma dichotoma, *Linn.* Blue curls. June–Aug. *b.* 6 to 12 i. ☉. Dry hills. Ky. *St.* W. *Bk.*

1294. Collinsonia canadensis, *Linn.* Horse-balm. Rich-weed. July–Sept. *y.* 2 to 3 f. 4. sw. The root is by some regarded as diuretic and antilithic. There is a notion extant that it will relieve after pains. See Raf. Med. Fl. i.

§ 4. *Monardeæ*

1295. Monarda coccinea, *Michx.* Wild balm. Oswego tea. July–Aug. *Crimson.* 2 to 3 f. 4. Swamps. Cultivated in Ohio, idigenous east of the Allegh. Mts.

1296. M. allophylla, *Michx.* Mountain balm. July. Pale *b.* 3 to 4 f. 4. Rocky woods. Ky. *St.*

1297. M. fistulosa, *Linn.* July–Aug. Pale *y.* 2 f. 4. Rocky banks, &c. O. Ky. Nervine, stomachic, deobstruent. Hoop. Dic.

1298. M. clinopodia, *Linn.* July–Sept. Pale *p.* 3 f. 4. Woods. O.

1299. M. punctata, *Linn.* Horse-mint. Sept. *y* and *brown.* 2 to 3 f. ♂. and 4. Pine barrens. Mo. Ter. *Jas.* W. *Bk.* Stimulant, carminiative, rubefacient. Ame. Med. Rec. ii. 496. Raf. Med. Bot. ii. 38.

1300. M. hirsuta, *Pursh.* Ohio horse-mint. June–July. Pale *b.* and *p.* 2 to 3 f. 4. Low woods. bt. W. The properties are said to be similar to the last.

1301. M. Beckii, *Eat.* Near St. L. *Bk.*

1302. M. ciliata, *Linn.* Aug. *p.* 4. Mich. *Eat.* Ky. *St.* Mo. Ter.

1303. M rugosa, *Ait.* July. *w.* 4 f. 4. Pittsburgh, *Peter.*

1304. M. scabra, *Bk.* Aug. *p.* 3 f. 4. Woods on the banks of the Miss. *Bk.*

1305. M. bradburiana, *Bk.* July. *w & p.* 2 to 3 f. 4. Barrens N. of St. L. *Bk.* Miami country. Duncan's plains, O.

1306. Cunila mariana, *Linn.* Dittany. July–Aug. Pale *r.* 1

to 2 f. 4. Rocky hills. Mar. O. Ky. Pleasant aromatic. For its medicinal virtues, see Raf. Med. Bot.

1307. C. glabella, *Michx.* Aug. *p.* 8 to 10 i. 4. Among limestone rocks. Frankfort, Ky. *St.* W. *Bk.*

1308. Tullia pycnanthemoides, *Leavenworth. Eat.* Aug. *r–p.* 2 to 3 f. 4. Tenn. *Leavenworth.*

§ 5. *Nepeteæ.*—Catmint like.

1309. Galeopsis tetrahit, *Linn.* Hemp nettle. Flowering nettle. July. *r, w & p.* 1 to 2 f. ⊙. Waste places. Mich. *Houghton.*

1310. Leonurus cardiaca, *Linn.* Motherwort. July–Aug. *w & r.* 2 to 3 f. 4. rd. &c. Intr. O. Ky. Said to promote uterine discharges, and allay palpitation of the heart. Hoop. Dic.

1311. Lamium amplexicaule, *Linn.* Dead nettle. Hen-bit. May–Nov. *r.* 6 to 8 i. ⊙. rd. O. Ky. Intr?

1312. L. hispidulum, *Michx. w.* Shady woods of Tenn. *Michx.* Louisville. *M'Murt.*

1313. Dracocephalum virginianum, *Linn.* Dragon-head. June?–Sept. *p.* 1 to 2 f. 4. Prairies. W.

1314. D. variegatum, *Vent.* June?–Aug. *p & w.* 3 f. 4. wp. Duncan's plains, O. Ky.

1315. D. cordatum, *Nutt.* June. *b.* 1 f. 4. On the shady islands of the Ohio, 40 miles below Pittsburgh.

1316. D. parviflorum, *Nutt.* July. *w.* ♂. Mo. Ter. *Nutt.*

1317. Nepeta cataria, *Linn.* Catmint. June–Sept. *w & r.* 2 to 3 f. rd. &c. Intr. W. Recommended in uterine diseases, dyspepsia, flatulency, &c. Hoop. Dic. A favourite remedy for colds in domestic practice.

1318. Synandra grandiflora, *Nutt.* June. *y–w.* 1 f. 4? rs. sw. O. Ky. &c.

1319. Stachys aspera, *Michx.* Hedge nettle. July. *p.* 1 f. 4. Fields, &c. W.

1320. S. sylvatica, *Nutt.* Aug. *p & w.* 1 to 2 f. 4. sw. W.

1321. S. intermedia, *Ait.* (Aug. *w & r.* 1 to 2 f. 4. Woods. O.)?

1322. Glechoma hederacea, *Linn.* Ground ivy. May–June. *b.* Decumbent, 1 f. rd. ow. O. Ky. A tonic beverage is often made from it. Lind. Nat. Syst. 238.

1323. Marrubium vulgare, *Linn.* Horehound. July–Aug. *w.* 12 to 18 i. 4. rd. W. Tonic, deobstruent. Wood & Bache, 409.

1324. Mellissa officinalis, *Linn.* Balm. July. *b.* 4. rd. Intr. and naturalized near Louisville. *M'Murt.* Formerly used in nervous diseases. Hoop. Dic.

1325. Hedeoma pulegioides, *Pers.* Pennyroyal. July–Aug. *w–p.* 6 to 10 i. ⊙. ow. rd. &c. W. Stimulant, aromatic, emenagogue. Bart. ii. 168.
1326. H. glabra, *Pers.* Aug. (*r–p.*)? 6 to 12 i. ♃. Ohio riv. *Nutt.* Near Wor. O.
1327. H. hispida, *Pursh.* July. 3 to 6 i. ⊙. Banks of the Miss. *Bk.* Mo. Ter. *Nutt.*
1328. Clinopodium vulgare, *Linn.* Field thyme. July–Aug. *p,* or *r.* 12 to 18 i. ♃. Rocky woods. W. *Bk.* Thickets near Mar. O.
1329. Prunella vulgaris, *Linn.* Self-heal. June–Aug. *p.* 8 to 12 i. ♃. md. W. Astringent, &c. Used as a gargle. Hoop. Dic.

Scutellaria.—Scull-cap. The western species are probably all good diaphoretics.

1330. Scutellaria galericulata, *Linn.* Aug. *b.* 12 to 18 i. ♃. Near marshes. Ky. *St.* See Hoop. Dic.
1331. S. lateriflora, *Linn.* Mad dog scull-cap. July–Aug. *b.* 1 to 2 f. ♃. md. ow. wp. W. Famous some years since for its supposed efficacy in hydrophobia.
1332. S. parvula, *Michx.* June. *b.* 3 to 6 i. ♃. Ky. *St.*
1333. S. lævigata, *Aikin.* May. *b.* 12 to 18 i. ♃. Mar. O?
1334. S. integrifolia, *Linn.* June. *b.* 18 to 24 i. ♃. Swamps. W. *Bk.*
1335. S. cordifolia, *Michx.* June. *b & w.* 18 to 30 i. ♃. Woods. W.
1336. S. canescens, *Nutt.* July. *b.* 2 to 3 f. ♃. Woods. W. Prairies near St. L. *Bk.* Ky. *St.* O. *Nutt.*
1337. S. gracilis, *Nutt.* June. *b.* 12 to 18 i. ♃. Shady rocks. Ky. *St.*
1338. S. ovalifolia, *Pers.* June. *b.* Assurgent, 1 f. ♃. Woods. W.
1339. S. ambigua, *Nutt.* Pale *b.* 4 to 6 i. ♃. Dry open forrests, O. *Nutt.* Ky. *St.*
1340. Salvia claytoni, *Ell.* Vervain sage. June–Oct. *p.* 8 to 12 i. ♃. Woods. Ky. *Eat.*
1341. S. lyrata, *Linn.* Wild sage. May–June. *b.* 1 f. ♃. Woods. West Va. *Padd.* Ky. *St.*

b. var. obovata, *Eat.* rb. Cincinnati.

1342. S. trichostemmoides, *Pursh. b.* ⊙. Mo. Ter. *Jas.*

CCXXII. *BORAGINEÆ.*—The borage tribe.

Generally possess emollient properties. Lind. 239.

1343. Lithospermum arvense, *Linn.* Corn gromwell. Stone-seed. Ap.–May. *w.* 8 to 15 i. Fields, Ky. *St.* Formerly supposed to be diuretic and lithontriptic.

1344. L. latifolium, *Michx.* Broad-leaf gromwell. July. *y.* 2 f. 4. sw. O. Ky.
1345. L. angustifolium, *Michx.* July. *w.* ⊙. Shady woods on the Ohio river. *Michx.* Council Bluffs, Mo. Ter. *Jas.*
1346. L. apulum, *Willd.* July. *y.* Dry woods, Ohio, Miss., &c. *Pursh.*
1347. Batschia canescens, *Michx.* Puccoon. June–July. *Orange.* 8 to 12 i. 4. Hills, &c. W. Used by the Indians as a red dye.
1348. B. longiflora, *Nutt.* July. *y.* Open plains. Prairie du Chien. *Nutt.*
1349. Onosmodium hispidum, *Michx.* Hairy gromwell. July–Aug. *w.* 2 to 3 f. 4. Borders of prairies. W.
1350. O. molle, *Michx.* July–Aug. *w.* 2 f. 4. W.
1351. Symphitum officinale, *Linn.* Comfrey. June. *y–w.* 1 to 3 f. 4. Intr. O. Hardly naturalized. Demulcent. Hoop. Dic.
1352. Lycopsis arvensis, *Linn.* Small bugloss. June–July. *b.* 12 to 18 i. ⊙. Sandy fields. Intr? Prairies near St. Charles. Mo. *Bk.*
1353. Myosotis arvensis, *Sibth.* Field scorpion grass. June. *w.* 4 to 10 i. ⊙. Sandy woods. Ohio. *Eberle.* Ky. *St.* St. L. *Bk.*
1354. M. palustris, *Roth.* Marsh scorpion grass. May–July. *b.* 12 to 18 i. 4. mh. Ditches, &c. Plt. *Jas.* Pittsburgh. *Peter.*
1355. M. suffruticosa, *Torr.* *b?* 8 i. Plt. *Jas.*
1356. Echinospermum virginicum, *Lehm.* Rochelia virginiana, *Torr.* Beggar-lice. July–Sept. Pale *b* or *w.* 2 to 4 f. ♂. ow. W.
1357. Cynoglossum officinale, *Linn.* Hound's tongue. June–July. *r.* 2 to 3 f. ♂. rd. W. Intr. Narcotic and demulcent. Hoop. Dic.
1358. C. amplexicaule, *Michx.* Wild comfrey. May. *b.* 2 to 3 f. 4. sw. W.
1359. C. pilosum, *Linn?* May. *w.* Arid hills, above Rapid river, Mo. Ter. *Nutt.*
1360. Pulmonaria virginica, *Linn.* Lungwort. May. *b.* 6 to 12, and 24 i. 4. Low grounds. W. Astringent, demulcent, and pectoral. See Raf. Med. Fl.
1361. P. lanceolata, *Pursh.* June. *b.* 4. Mo. Ter. *Nutt.*

CCXXIII. *HELIOTROPIACEÆ.*—The heliotrpe tribe.

1362. Heliotropum indicum, *Linn.* Turnsole. Heliotrope. July. *b.* 8 to 12 i. ⊙. Banks of streams. Cin. O. Ky.

1363. H. curassavicum, *Linn.* June–July. *w & y.* 6 to 12 i. ⊙? Plt. *Jas.*

CCXXVI. *HYDROPHYLLEÆ.*—THE WATER-LEAF TRIBE.

1364. Hydrophyllum virginicum, *Linn.* Water-leaf. June. *w & b.* 18 i. ♃. bt. sw. rs. W. Used as a potherb in New York, under the name of John's cabbage.

1365. H. canadense, *Linn.* Burr-flower. June. *b & w.* 18 i. ♃. Argillaceous soil. Woods, &c. O. Ky.

1366. H. lineare, *Pursh.* Ap. ♃. Banks of the Missouri. *Lewis.*

1367. H. hispidum, *mihi.* Perennial?, whole plant hispid or setose with terete, pointed white hairs: *leaves* mostly radical, pinnatifid, lower lobes often isolated; lobes obovate, border divided by shallow gashes into 5 to 8 rounded, ciliate, entire, mucronate lobuli, which together present a palmated appearance; general outline of the leaf oblong or oval, (4 to 8 inches long, 2 to 3 in width,) on petioles of equal length (4 to 8 inches). The single cauline leaf does not vary essentially from the above description. It is broader in proportion to its length, and its petiole is much shorter. *Peduncle* exceeding the leaves, 8 to 12 inches in height. *Flowers* in cymose clusters as in H. virginicum; divisions of the calyx broad subulate, pectinately setose; corol campanulate, border with 5 rounded lobes; filaments densely bearded in the middle, double the length of the corol; style filiform, bifurcate to the extent of a line; capsule 2-valved (1-celled, 2 to 4-seeded.)? This description has been taken from dried specimens. Flowers in June. Woods, O.

1368. Nemophila paniculata, *Spreng.* May. *b.* 1 f. ☿. Woods. O. Ky.

1369. Phacelia fimbriata, *Michx.* Miami mist. May–June. *b.* 8 to 12 i. ⊙? Fields and bottom lands. W.

1370. P. bipinnatifida, *Michx.* Phacelia. May. *b.* 1 f. ♃? Hill sides. Ky. Cin. O.

1371. P. heterophylla, *Pursh.* Various-leaved phacelia. July. *b.* ☿. Ky. *St.*

1372. P. integrifolia, *Torr.* Plt. *Jas.*

1373. Ellisia nyctelea, *Linn.* June. *w & b.* Decumbent. 6 to 8 i. ⊙. Mo. Ter. *Jas.*

1374. E. ambigua, *Nutt.* May. *b.* Decumbent. 4 to 6 i. ⊙. Lead mines, Mo. *Jas.*

TRIBE II. GYMNOSPERMÆ.—*Seeds destitute of a pericarp.*

CCXXVIII. *CONIFERÆ.*—THE FIR TRIBE.

1375. Juniperus communis, *Linn.* Juniper. May. An evergreen shrub. Rocky banks of streams. Sandy shores of Lake Huron. *Nutt.* Berries stimulant and diuretic. Woodville's Med. Bot. 13. Big. iii. 44.

1376. J. prostrata, *Michx.* May. A low evergreen shrub, with creeping branches, 6 feet long. Sandy shores of Lake Huron. *Nutt.*

1377. J. virginiana, *Linn.* Red cedar. May. Middle-sized evergreen tree. Woods, rocky banks of streams, W. Secernant stimulant, emenagogue, diuretic, diaphoretic. Big. ii. 49. Timber durable.

1378. J. sabina, *Willd.* Savin. May. ♄. Grows near Lake Superior. *Pitcher.* Properties like the last. Wood & Bache, 548.

1379. Taxus canadensis, *Willd.* Dwarf yew. March–April. 2 to 6 f. ♄. Evergreen. Fruit red. rs. &c. Louisville. *M'Murt.*

1380. Cupressus thyoides, *Linn.* White cedar. May. An evergreen tree, 30 to 50 f. Swamps. rs. Rocky banks of the Scioto. Wood durable.

1381. C. disticha, *Linn.* Cypress. May. Large evergreen tree. Swamps. Ky. *St.* W. *Bk.* Timber very durable.

Pinus.—The pine family.

* *Leaves in fascicles of 2 to 5, persistent, sheathing at base; scales of the cone thickened at the summit.* PINUS.

1382. Pinus inops, *Ait.* Scrub pine. Pitch pine. Jersey pine. May. Common-sized tree. Barrens, &c. Ky. *St.*

1383. P. variabilis, *Lamb.* Yellow pine. May. Large tree. Forests, on hills about Portsmouth, O. (?)

1384. P. banksiana, *Lamb.* Grey pine. Scrub pine. April–May. Small tree. rs. Mar. O. Rare.

1385. P. strobus, *Linn.* White pine. Weymouth pine. May. Large tree, 90 to 140 f. Fertile soils. East Ohio. Timber valuable.

* * *Leaves solitary, persistent, distinct at base; scales of the cone even and attenuated.* ABIES.

1386. P. canadensis, *Linn.* Hemlock tree. Hemlock spruce. May. Large tree. Woods. O. Scarce. Bark astrin-detergent; used in tanning leather. A fomentation of

the boughs is highly esteemed in domestic practice for its efficacy in subduing colds. Turpentine like that of all other species of Coniferæ stimulant, rubefacient, and diuretic.

1387. P. nigra, *Ait.* Black spruce. May. Large pyramidal tree. Swamps. Mich. *Eat.*

1388. P. alba, *Ait.* White spruce. May. Small tree. Swamps. Ky. *St.*

* * * *Leaves many in a fascicle, deciduous.* LARIX.

1389. P. pendula, *Ait.* Tamarack. Hackmatack. Ap.–May. Middle-sized tree. Swamps. East Ohio. Bark tonic and diuretic, very highly esteemed by some practitioners.

CLASS II.—ENDOGENÆ.

TRIBE I. PETALOIDEÆ.—*Calyx and corolla developed in* 3 *or* 6 *divisions; if absent, stamens and pistils naked.*

CCXXIX. *ALISMACEÆ.*—THE WATER PLANTAIN TRIBE.

1390. Alisma plantago, *Linn.* Water plantain. July–Aug. *w.* 1 to 2 f. ♃. mh. pl. W. One of the reputed remedies for hydrophobia. Lind. 251.

1391. Sagittaria sagittifolia, *Willd.* Arrow-head. Arrow-leaf. July–Aug. *w.* 1 to 2 f. ♃. mh. pl. O. Ky.

b. var. latifolia, *Torr.* Leaves broad, rather obtuse. O.

c. var. hastata, *Torr.* Leaves subhastate. O.

d. var. gracilis, *Torr.* Leaves linear hastate. Dayton, O.

1392. S. obtusa, *Willd.* Blunt arrow-leaf. July. *w.* 1 to 2 f. ♃. mh. wp. Ditches, &c. O.

1393. S. pusilla, *Nutt.* Aug. 2 to 4 i. ♃. Muddy banks. Ky. *St.*

CCXXXI. *HYDROCHARIDEÆ.*—THE FROG-BIT TRIBE.

1394. Udora canadensis, *Nutt.* Ditch moss. Aug. *w.* Submersed, 1 to 2 f. ♃. pl. Ohio. Ky.

1395. Vallisneria spiralis, var. americana, *Torr.* Tape grass. Aug. *w.* 1 to 4 f. ♃. In the still waters of rivers. W.

CCXXXII. *COMMELINEÆ.*—THE SPIDER-WORT TRIBE.

1396. Commelina communis, *Linn.* Commelina. Aug. *b.* ☉. Ky. *St.*

1397. C. virginica, *Linn.* July. *b.* 2 f. ♃. Woods. Ky. *St.*

1398. Tradescantia virginica, *Linn.* Spider-wort. May–July. *p.* 1 f. ♃. sw. dp. O. Ky. Fig. Bart. Fl. N. A. ii. 17.

1399. T. rosea, *Michx.* May. *r.* 8 to 12 i. 4. Moist woods. Ky. *St.*

CCXXXIII. *XYRIDÆ.*—THE YELLOW-EYED GRASS TRIBE.

1400. Xyris caroliniana, *Walt.* Yellow-eyed grass. July. *y.* 1 f. 4. wp. mh. md. O. Ky.

CCXXXIV. *BROMELIACEÆ.*—THE PINE-APPLE TRIBE.

1401, Agave virginica, *Linn.* False aloe. Sept. *g–y.* 6 f. 4. Rocky banks. Ky. *St.*

CCXXXV. *HYPOXIDEÆ.*—THE STAR-GRASS TRIBE.

1402. Hypoxis erecta, *Linn.* Star-grass. June–July. *y.* 4 to 6 i. 4. md. rs. ow. O. Ky. Figured, Bart. Fl. N. A. i. 124.

CCXXXVIII. *AMARYLLIDEÆ.*—THE NARCISSUS TRIBE.

1403. Pancratium rotatum, *Ker.* July. *w.* 4. Ky. *St.*

1404. Amaryllis atamasco, *Linn.* Atamasco lily. June. *w & r.* Scape 6 i. Leaves 1 f. sw. Louisville. *M'Murt.* Said to grow in Indiana.

CCXXXIX. *IRIDEÆ.*—THE IRIS TRIBE.

1405. Iris versicolor, *Linn.* Blue flag. June. *b, g & y.* 2 to 3 f. 4. Margins of ponds, &c. O. Ky. Cathartic, emetic, diuretic. Big. i 155. By some said to be alterative.

1406. I. cristata, *Michx.* April. *b & y.* 2 to 4 i. 4. Ky. *St.*

1407. I. verna, *Willd.* May. *b.* 4. Ky. *St.*

1408. I. lacustris, *Nutt.* June. Scape 1 i. Leaves 3 to 5 i. 4. Gravelly shores of Lake Huron. *Nutt.*

1409. Sisyrinchium anceps, *Linn.* Blue-eyed grass. July. *b.* 1 f. 4. Pastures, &c. O. Ky. The Thompsonians use it as a cathartic, under the name of *physic-grass.*

1410. S. mucronatum, *Michx.* July. *b.* 6 to 10 i. 4. Wet meadows. Ky. *St.* Plt. *Jas.*

1411. S. bermudianum, *Linn.* June. *b.* 8 to 18 i. 4. Ill. *Bk.*

CCXL. *ORCHIDEÆ.*—THE ORCHIS TRIBE.

1412. Goodyera pubescens, *Brown.* Rattlesnake plantain. July–Aug. *w.* 6 to 10 i. 4. sw. O. Ky.

1413. Spiranthes tortilis, *Rich.* Ladies' tresses. Aug.–Oct. (June–July. *Bk.*) *w.* 8 to 12 i. 4. wp. O. Ky. Fig. Bart. Fl. N. A. i. 124.

1414. S. cernua, *Rich.* July–Aug. *g–w.* 6 i. to 2 f. 4. Moist grounds. West Va. *Paddock.*

1415. Pogonia ophioglossoides, *Brown.* July. Pale *p.* 8 to 12 i. 4. bg. Sphagnous swamps. Ky. *St.* Fig. Bart. Fl. N. A. iii. 19.

1416. P. verticillata, *Nutt.* June–July. *y–r.* 1 f. 4. Swamps. Ky. *St.* Mich. *Eat.* Fig. Bart. Fl. N. A. ii. 92.

1417. Callopogon pulchellus, *Brown.* Grass pink. June–July. *p.* 12 to 18 i. 4. wp. Swamps. Ky. *St.* Pickaway plains, O. Fig. Bart. Fl. N. A. ii. 94.

1418. Corallorhiza odontorhiza, *Nutt.* Dragon's claw. Aug.–Sept. *Purplish.* 10 to 12 i. 4. Roots of trees. O. Ky.

1419. Aplectrum hiemalis, *Nutt.* Adam and Eve. May–June. *Brownish.* 1 f. 4. sw. bt. O. Ky. Fig. Bart. Fl. N. A. ii. 42. Root viscid.

1420. Triphora pendula, *Nutt.* Three-bird orchis. Sept. Pale *p.* 3 to 6 i. 4. sw. Roots of trees. O. Ky.

1421. Orchis spectabilis, *Linn.* Orchis. June. *p & w.* 6 to 8 i. 4. sw. O. Ky.

1422. Habenaria tridentata, *Hook.* June–July. *w.* 1 to 2 f.

1423. H. ciliaris, *Brown.* June–July. *Orange y.* 1 to 2 f. 4. Swamps. Ky. *St.*

1424. H. huronensis, *Spreng.* Aug. 4. Wet grounds. About Lakes Mich. and Huron. *Bk.*

1425. H. fimbriata, *Brown.* July. *p.* 2 f. 4. md. wp. O. Ky.

1426. H. fissa, *Brown.* July. Dark *p.* 2 to 4 f. 4. Prairies. O. Ky.

1427. Platanthera orbiculata, *Lind.* July. *g–w.* 12 to 18 i. 4. sw. Central, O. I have known the fleshy leaves of this plant, to be used and highly esteemed for dressing blisters.

1428. Liparis liliifolia, *Rich.* Malaxis, *Eat.* Twayblade. June–July. *w & y.* 6 to 8 i. 4. Wet woods. Central, O.

1429. L. correana, *Spreng.* Malaxis longifolia, *Eat.* June. *y–g.* 6 to 8 i. 4. sw. O. Fig. Bart. Fl. N. A. iii. 12.

1430. Microstylis ophioglossoides, *Nutt.* June. *g–w.* 6 to 9 i. 4. Roots of trees. O. Ky. Fig. Bart. Fl. N. A. iii. 60.

1431. Bletia aphylla, *Nutt.* Aug. *y & r.* 18 i. 4. Ky. *St.*

1432. Calypso americana, *Brown.* *p.* 6 to 8 i. Near the outlet of Lake Michigan. *Bk.*

1433. Cypripedium pubescens, *Swartz.* Ladies' slipper. May. *g–y.* 1 to 3 f. 4. Woods. O. Ky. Fig. Bart. Fl. N. A. iii. 9.

1434. C. parviflorum, *Willd.* Yellow ladies' slipper. May–June. *y.* 1 f. 4. Dry woods. W. Said to be excellent as a nervine, tonic, and antispasmodic. The powder of the root is administered in tea spoonful doses, for hysterical and other affections. The Thompsonians, by whom it is used, call it *umbil* and *wild valerian.* They

use all the species of Cypripedium indiscriminately. See Raf. Med. Fl.

1435. C. candidum, *Willd.* White ladies' slipper. May. *w.* 6 i. 4. Dayton, O. *R. Buchanan, Esq.*

1436. C. spectabile, *Swartz.* Swamp ladies' slipper. May–June. *w & p.* 2 to 3 f. 4. mh. bg. W. Ky. *St.* Mich. *Eat.* Seven miles N. from Cin. O. Fig. Bart. Fl. ii. 87.

1437. C. acaule, *Ait.* May–June. *p.* 1 f. 4. sw. Ky. *St.* Mich. *Eat.* Fig. Bart. Fl. iii. 35.

CCXLIV. *JUNCEÆ.*—The rush tribe.

Juncus.—Rush.

* *Leaves none, flowers lateral.*

1438. Juncus effusus, *Linn.* Soft rush. June–July. 2 to 3 f. 4. Wet grounds. Ky. *St.* Central Ohio.

1439. J. setaceus, *Rostk.* Thread-form rush. July. 2 to 3 f. 4. Swamps. Miami country.?

* * *Leaves all radical, flowers terminal.*

1440. J. nodosus, *Linn.* Knot-leaf rush. July–Aug. 8 to 12 i. 4. Swamps. Low grounds. St. Mary's river. *Hough.* Cin. O.

1441. J. tenuis, *Willd.* Slender spreading rush. June–July. 10 i. 4. Low grounds. O. Ky.

* * * *Stem leafy; leaves nearly plane, channelled above.*

1442. J. bufonius, *Linn.* Toad rush. Aug. 3 to 6 i. ☉. Moist places. Miami country.?

1443. J. marginatus, *Rostk.* Aug. 1 to 3 f. 4. Low grounds. Miami country.?

* * * * *Stems leafy; leaves rounded or subcompressed, nodose-articulate.*

1444. J. polycephalus, *Michx.* Many-headed rush. July–Aug. 2 to 3 f. 4. mh. &c. Worthington, O. Miami country. N. W. Ter.

1445. J. acuminatus, *Michx.* July. 12 to 18 i. 4. bg. &c. Cin. *Colby.*

1446. Luzula campestris, *De Cand.* Field wood-rush. April–May. 6 to 12 i. 4. md. Ky. *St.*

CCXLV. *MELANTHACEÆ.*—The colchicum tribe.

Acrid and poisonous in every species. Lind. 270.

1447. Melanthium hybridum. Bunch flower. June–July. *w.* 2 f. 4. Mo. Ter. *Jas.*
1448. M. virginicum, *Linn.* Tall melanthium. July. *g–w.* 3 to 4 f. 4. wp. md. mh. Pittsburgh. *Peter.* Louisville. *M'Murt.* Prairies of Ohio.
1449. M. glaucum, *Nutt.* July–Aug. *w.* 1 f. 4. Borders of Lake Erie, &c. in calcareous soil. *Nutt.*
1450. Tofielda glutinosa, *Michx.* 4. About Detroit. *Nutt.*
1451. Helonias dioica, *Pursh.* Blazing star. June. *w.* 1 to 2 f. 4. Damp grounds. W. *Bk.* Dry open woods. Mar. O. Ky. Acrid, medicinal. An infusion of the root is anthelmintic; the tincture is tonic. Lind. 270.
1452. Veratrum viride, *Ait.* Poke root. American hellebore. June–July. *g.* 3 to 5 f. 4. Swamps. md. Louisville. *M'Murt.* Acrid, emetic, powerfully stimulant, followed by sedative effects. Big. ii. 125.
1453. V. angustifolium, *Pursh.* June. *g–w.* 2 to 3 f. 4. Grassy prairies of Ohio and Tenn. *Nutt.* Ky. *St.*
1454. Zigadenus elegans, *Pursh.* Zigadene. June. *w.* 4. Ark. *Jas.*

CCXLVI. *PONTEDEREÆ.*—The pickerel weed tribe.

1455. Heteranthera reniformis, *Michx.* Mud plantain. July–Aug. *w.* Sometimes partly floating. 4 to 8 i. 4. rb. Mud. Ky. *St.* Lockbourne, O.
1456. H. ovalis, *Michx.* July. *b.* 4. Ky. *St.*
1457. Schollera graminifolia, *Vahl.* Yellow-eyed water grass. July–Aug. *y.* Submersed. 6 to 30 i. 4. In flowing streams. O. Ky. Fig. Bart. Fl. N. A. ii. 53.
1458. Pontederia cordata, *Linn.* Pickerel weed. Aug. *b.* 1 to 2 f. 4. Ponds. Ky. *St.*
1459. P. angustifolia, *Pursh.* July. *b.* Ponds. Ky. *St.*

CCXLVII. *ASPHODELEÆ.*—The asphodel tribe.

1460. Allium triflorum, *Raf.* Leek. Mountain leeks. May–June. *w.* 6 to 8 i. 4. Woods. Wor. O. Used as a potherb. The different species of Allium (including the garlic and cultivated onions) are more or less stimulant, diuretic, and expectorant. Lind. Nat. Syst. 272.
1461. A canadense, *Linn.* Meadow garlic. May–June. Pale *r.* 18 i. 4. md. O. Ky.
1462. A. cernuum, *Roth.* Nodding wild onion. July. Pale *r.* 1 to 2 f. 4. dp. Hill sides. O. Ky.
1463. A. tricoccum, *Ait.* Three-seed leek. June–July. *w.* 1 f. 4. Upland woods. Ky. *St.* O.

1464. A. vineale, *Linn.* Field garlic. June–July. Pale *r.* 2 f. 4. md. Intr. Louisville. *M'Murt.*
1465. A. striatum, *Pursh.* Scentless onion. Ap. *w.* 8 to 12 i. 4. Pine barrens. *Ell.* Timbered alluvions near St. L. *Bk.*
1466. A. angulosum, *Linn.* *w* or *p.* 4. Damp. Mo. Ter. *Nutt.*
1467. Aletris farinosa, *Linn.* Star-grass. July. *w.* 2 f. 4. Sandy woods. Prairies of Mich. *Hough.* Louisville. *M'Murt.* Tonic, stomachic, emetic in large doses. Big. Med. Bot. iii. 92.
1468. Phalangium esculentum, *Nutt.* Quamash. May. *b.* 12 to 18 i. 4. bt. Hill-sides, &c. W. The root is an article of diet among the Indians of the Rocky Mountains. *Lewis.*
1469. Brodiæa grandiflora, *Smith.* Missouri hyacinth. April. 4. Plains of the Missouri. *Lewis.*

CCXLIX. *SMILACEÆ.*—The smilax tribe.

Smilax.—Green brier.

The roots of several species (S. sassaparilla, china, pseudo-china et aspera) are much used in medicine, under the name of sassaparilla, for their alterative qualities. It is quite probable that some of our western species may be advantageously substituted for the worm-eaten, time-injured sassaparilla of the shops.

1470. Smilax rotundifolia, *Linn.* Green brier. June. *w–g.* Climbing. ♄. Berries black. Thickets, &c. O. Ky.
1471. S. pseudo-china, *Linn.* May–June. Climbing. ♄. Woods. Wor. O. Medicinal. Ell. Bot. iii. 700.
1472. S. pandurata, *Pursh.* July. Twining. ♄. Berries black. Woods. Ohio.
1473. S. walteri, *Pursh.* July. ♄. Berries red. Woods. Mar. O.?
1474. S. cincidifolia, *Pursh.* ♄. Wor. Mar. O.
1475. S. hastata, *Willd.* July. Twining. ♄. Rich shaded soils. Louisville. *M'Murt.*
1476. S. bona-nox, *Linn.* Vine. ♄. Margins of swamps. Ky. *St.*
1477. S. caduca, *Linn.* June. ♄. Dry fields. Louisville. *M'Murt.*
1478. S. peduncularis, *Muhl.* June, *w–g.* Climbing 3 to 5 f. 4. Low woods. O. Ky.
1479. S. herbacea, *Linn.* June–July. *g.* 2 to 3 f. 4. Woods. Ky. *St.* Cin. O. Fig. Bart. Fl. N. A. ii. 99

Convallaria.—Solomon's seal.

1480. Convallaria bifolia, *Linn.* May. *w.* 4 to 6 i. 4. rs. sw. Wor. O.
1481. C. trifolia, *Linn.* June–July. *w.* 6 i. 4. Alpine swamps. Mich. *Eat.*
1482. C. stellata, *Linn.* May–June. *w.* 1 f. 4. River banks. Ohio. *Paddock.*
1483. C. racemosa, *Linn.* June–July. *g–w.* 18 to 24 i. 4. Woods. W. Medicinal. See 1484.
1484. C. multiflora, *Linn.* Solomon's seal. June–July. *g–w.* 2 to 3 f. 4. ow. bt. W. Astringent, corroborant, *Beach.* Raf. Med. Fl.
1485. C. pubescens, *Pursh.* May–June. *y–w.* 18 i. 4. rs. Ohio. *Paddock.*
1486. C. majalis, *Willd.* Lily of the valley. June. *w.* 4. Louisville. *M'Murt.*

1487. Streptopus lanuginosus, *Michx.* May. *g–y.* 18 i. 4. Woods. Ky. *St.*
1488. Medeola virginica, *Linn.* Cucumber root. May–June. *y.* 12 to 18 i. 4. Woods. W. Diuretic, hydragogue. Bart. ii. 147. Raf. Med. Fl.
1489. Uvularia perfoliata, *Linn.* Bellwort. May–June. Pale *y.* 8 to 12 i. 4. Shady hills. W. The root is an empirical remedy for snake bites. Fig. Bart. Fl. N. A. i. 112.
1490. U. grandiflora, *Smith.* Large bellwort. June. *y.* 10 to 20 i. 4. rs. W. Reputed virtues like the last.
1491. U. sessilifolia, *Linn.* May. Pale *y.* 8 to 10 i. 4. sw. W. Fig. Bart. Fl. ii. 55.

Trillium.—Birthroot. Wake-robin. Trillium.

According to De Candolle, the roots of these plants are violently emetic. Lind. 276. Dr. Beach regards them as astringent, pectoral, tonic, antiseptic and alterative. Beach's Am. Pract. In domestic practice they are administered preparatory to parturition, and hence the name *birthroot.*

1492. Trillium sessile, *Linn.* April–May. Dark *p.* 8 i. 4. Fertile woods. W.
1493. T. recurvatum, *Bk.* Bot. 300. May. *p.* 8 to 10 i. 4. sw. On the Miss. &c. *Bk.*
1494. T. viride, *Bk.* Ap. Dark *g.* 8 to 12 i. 4. sw. W. *Bk.*
1495. T. pendulum, *Willd.* May. *w* with *r* veins. 1 f. 4. Mts. Ky. *St.*

1496. T. erectum, *Linn.* May. Dark *p.* 12 to 15 i. 4. sw. W. Ky. *St.* Ill. riv. *Bk.* O.

b. var. album, *Pursh.* May. *w.* 12 to 15 i. 4. sw. O.

1497. T. grandiflorum, *Salisb.* May. *w.* 8 to 12 i. 4. md. ow. W.

1498. T. cernuum, *Linn.* May. *w.* 12 to 18 i. 4. sw. Ky. *St.* Fig. Bart. Fl. ii. 15.

1499. T. ovatum, *Pursh.* Ap. *p.* 4. Northern Andes. *Nutt.*

1500. T. nivale, *mihi.* *Root* perennial, tuberous præmorse, of a sweet and mawkish taste. *Stem* glabrous, 2 to 3 inches high. *Leaves* short petioled, oval, obtuse, 12 to 16 lines long, 8 to 10 lines wide, glabrous, 5-nerved. *Peduncle* erect, near 4 lines in length. *Sepals* lance-ovate, obtuse, 5-nerved. *Petals* spatulate-obovate, obtuse, nerved, white, 6 to 8 lines in length, one third longer than the calyx. Flowers in March. I have met with this interesting plant only on the east bank of the Scioto river, near Dublin, inhabiting a steep declivity, among comminuted fragments of limestone. Its delicate white blossom is one of the earliest of that region.

CCL. *DIOSCOREÆ.*—The yam tribe.

1501. Dioscorea villosa, *Linn.* Yam root. China root. May–June. *y–w.* Climbing vine, 6 to 12 f. 4. Root woody, tortuous, echinate. ow. bt. W. An infusion of the root is unquestionably a valuable remedy in bilious colic. An ounce of the powdered root is to be boiled in a pint of water, and half of it given at once. It acts with remarkable promptitude. I have been informed that Dr. Miller of Neville, Ohio, values the tincture highly as an expectorant. He says it is also diaphoretic, and in large doses emetic.

CCLI. *LILIACEÆ.*—The lily tribe.

1502. Lilium canadense, *Linn.* Turk's-cap. Nodding lily. July–Aug. *y* and *orange*, with dark spots. 2 to 3 f. 4. md. wp. W.

1503. L. superbum, *Linn.* Superb lily. July. *Orange* with dark spots. 4 to 6 f. 4. Wet meadows. Ky. *St.*

1504. L. philadelphicum, *Linn.* July–Aug. Dark *orange*, spotted at the base. 18 i. 4. Darby Plains, O.

1505. L. catesbæi, *Walt.* Catesby's lily. June–Aug. *r.* Spotted with *y* and *brown.* 18 i. 4. Sandy meadows. Ky. *St.* Prairies near St. L. *Bk.*

1506. Yucca angustifolia, *Pursh.* Adam's needle. July. *w.* 4. Banks of the Missouri. Plt. *Nutt.*

1507. Erythronium americanum, *Smith.* Adder-tongue. Dog-

tooth violet. Ap.–May. *y.* 6 to 8 i. 4. bt. ow. W. Emetic. Big. Am. Med. Bot. iii. 51.

1508. E. albidum, *Nutt.* White erythronium. April–May. *w.* 6 i. 4. bt. W.

CCLIII. *RESTIACEÆ.*—THE PIPEWORT TRIBE.

1509. Eriocaulon pellucidum, *Michx.* Pipewort. Aug. *w.* 4 to 8 i. 4. In ponds. New York. Lake Sup. *Houghton.* Perhaps in the interjacent regions.

CCLV. *TYPHACEÆ.*—THE REED-MACE TRIBE.

1510. Typha latifolia, *Linn.* Reed-mace. Cat's-tail. Cat-tail flag. July–Aug. 5 to 6 f. 4. mh. pl. Ohio. Ky. The leaves are used by coopers, for rendering barrels tight.

1511. T. angustifolia, *Linn.* Lesser reed-mace. July–Aug. 4 to 5 f. 4. mh. pl. Central O.

1512. Sparganium americanum, *Nutt.* Burr reed. Aug. 1 f. 4. Ponds and lakes. O. Ky.

1513. S. ramosum, *Smith.* Branched burr reed. July–Aug. 2 f. 4. pl. Stagnant waters. Louisville, *M'Murt.*

1514. S. angustifolium, *Michx.* Floating burr reed. Aug. 4. Lakes, &c. Ponds on Darby Plains, O.?

CCLVI. *AROIDEÆ.*—THE ARUM TRIBE.

1515. Arum triphyllum, *Linn.* Indian turnip. May–June. *g, y & p.* 1 to 2 f. 4. sw. W. Acrid irritant, secernant stimulant, pectoral. Big. Med. Bot. i. 52.

1516. A. dracontium, *Linn.* Green dragon. June–Jul. 1 f. 4. sw. bt. W.

1517. Lecontia virginica, *Cooper.* Poison arum. July. 12 to 18 i. 4. wp. Walnut plains, Picaway Co. O. Louisville. *M'Murt.*

1518. Symplocarpus fœtidus, *Nutt.* Skunk cabbage. March. *p. g & y.* 1 to 2 f. 4 Wet woods and meadows. W. Stimulant, antispasmodic, narcotic. Bart. Med. Bot. i. 123. Big. Med. Bot. ii. 41.

1519. Orontium aquaticum, *Linn.* Golden club. May. *y.* 12 to 20 i. 4. In water. Louisville. *M'Murt.* Fig. Bart. Fl. N. A. ii. 1.

1520. Acorus calamus, *Linn.* Sweet flag. June. *g–w.* 2 to 3 f. 4. Swamps. W. Stimulant, tonic, stomachic. Bart. Med. Bot. ii. 63.

CCLVIII. *FLUVIALES.*—THE POND-WEED TRIBE.

1521. Caulinia fragilis, *Willd.* Water knot-grass. Aug. 1 to 3 f. submersed. ⊙. pl. Miami country.

Potamogeton. **Pond weed.**

* *Upper leaves floating.*

1522. Potamogeton natans, *Linn.* Pond-weed. July–Aug. 1 to 4 f. 4. Ponds and lakes. O. Ky.
1523. P. fluitans, *Linn.* River-weed. July–Aug. 1 to 4. 4. Running streams. Ohio.
1524. P. heterophyllum, Various-leaved pond-weed. Aug. 2 to 3 f. 4. pl. A pond 6 miles east from Cin. O.

** *Leaves all submersed.*

1525. P. perfoliatum, *Linn.* Perfoliate pond-weed. July. 4. pl. Louisville. *M'Murt.*
1526. P. lucens, *Linn.* Shining pond-weed. Aug. Long and large. 4. pl. Streams, &c. Ky. St.
1527. P. compressum, *Linn.* Flat-stem pond-weed. July–Aug. Small, branched; leaves 2 i. 4. In water. Ky. St. Old River, Hamilton, O.
1528. P. pectinatum, *Linn.* Fennel-leaved pond-weed. June. 1 to 2 f. 4. pl. Rivers. Ohio.
1529. P. pauciflorum, *Pursh.* P. gramineum, *Michx.* Grass-leaved pond-weed. July–Aug. 8 to 18 i. 4. pl. &c. O. Ky.
1530. P. acutifolium, *Link.* Sharp-leaved pond-weed. July. 4. pl. Ky. *St.* Leaves linear, acuminate, 3-nerved; spike oval, compact, equal in length to the peduncle. Hook. Brit. Fl. 74.

CCLIX. *JUNCAGINEÆ.*—The arrow-grass tribe.

1531. Triglochin maritimum, *Linn.* Arrow-grass. July. *g.* 18 i. 4. Salt marshes usually. West to Mich. *Bk.*

CCLX. *PISTIACEÆ.*—The duckweed tribe.

1532. Lemna trisulca, *Linn.* Duck's meat. Ivy-leaved duckweed. July. Floating and submersed, detached. 6 lines. ⊙. pl. Ky. *St.* Miami country.
1533. L. polyrhiza, *Linn.* Duckweed. June–July. Floating, detached. 3 to 4 lines. ⊙. pl. Mich. *Eat.* O.
1534. L. minor, *Linn.* Lesser duckweed. Water flax-seed. June–July. Floating, detached. 1 to 2 lines. ⊙. pl. O. Ky.

Tribe II. Glumaceæ. *Flowers enveloped in glumaceous bracts, destitute of the true calyx and corolla.*

CCLXI. *GRAMINEÆ.*—The grass tribe.

Div. i. Agrostideæ.

Agrostis. Bent grass.

1535. Agrostis vulgaris, *Smith.* Red-top. July. 18 to 20 i. 4. md. W. Intr.
1536. A alba, *Linn.* Bonnet grass. Aug. 18 i. ⊙. md. St. L. *Bk.* Cin. O. *Colby.*
b. var. decumbens, *Eat.* Fiorin grass. Dry pastures and woods, Germantown, O. *Frank.*
1537. A. lateriflora, *Michx.* Aug.–Sept. 2 f. 4. Swamps, wp. W. Ky. *St.* Cin. *Colby.* Germantown. *Frank.* Dayton, O.
1538. A. tenuiflora, *Willd.* July–Aug. 3 f. 4. Rocky woods. Ky. *St.*
1539. A. clandestina, *Spreng.* Sept. 2 f. 4. Dry hills. Ky.? *St.*
1540. A. dispar, *Michx.* Ky.? *St.*
1541. A. brevifolia, *Nutt.* 1 f. Arid plains, Mo. Ter. *Nutt.*
1542. A. cæspitosa, *Torr.* 4 i. Plt. *Jas.*
1543. Polypogon racemosum, *Nutt.* Beard grass. Aug. 8 f. 4. Alluvions. Mo. & Miss. St. L. *Nutt.* 3 to 4 f. bg. W. *Bk.*
1544. Cinna arundinacea, *Willd.* Indian reed. Aug. 2 to 5 f. 4. Wet grounds, Ky. *St.*
1545. Phleum pratense, *Linn.* Herd's grass. Timothy grass. June–Aug. 2 to 3 f. 4. md. Intr. W.
1546. Muhlenbergia diffusa, *Schreb.* Drop-seed grass. July. 18 i. 4. Fields. O. Ky. *Nutt. St.*
1547. M. erecta, *Schreb.* July. 2 to 3 f. 4. rs. Woods. Germantown, O. *Frank.* Ky. *St.*
1548. Phalaris americana, *Ell.* American canary grass. July–Aug. 2 to 5 f. 4. Swamps, Louisville. *M'Murt.*
1549. Trichodium laxiflorum, *Michx.* Thin grass. May–June. 18 i. 4. Dry fields. O.
1550. Alopecurus geniculatus, *Linn.* Wild fox-tail grass. June. 12 to 18 i. 4. Wet meadows. St. L. *Bk.* N. W. Ter. *Houghton.*
1551. A. pratensis, *Linn.* Fox-tail grass. May–Aug. 2 to 4 f. 4. Fields and pastures. Intr. O. *Frank.*
1552. Crypsis squarrosa, *Nutt.* ⊙. 3 to 4 i. Arid plains, Mo. Ter. *Nutt.*

Div. II. Paniceæ.

Panicum. Panic grass.

1553. Panicum crus-galli, *Linn.* Cocksfoot grass. Aug.–Sept. 2 to 4 f. ⊙. cf. Intr. W.
1554. P. clandestinum, *Linn.* July–Aug. 2 to 3 f. 4. Moist woods. Ky. *St.* Cin. *Colby.*
1555. P. latifolium, *Linn.* May–July. 1 f. 4. ow. Thickets. W.
1556. P. dichotomum, *Linn.* Aug. 8 to 16 i. 4. Dry woods, &c. Ky. *St.* Mar. O.
1557. P. nitidum, *Lam.* June–July. 18 i. to 2 f. 4. Barrens, &c. Ky. *St.*
1558. P. agrostoides, *Muhl.* Aug. 2 to 3 f. 4. Wet meadows. Ky. *St.*
1559. P. proliferum, *Lam.* Sept. 2 to 4 f. f. 4. Wet meadows. Ky. *St.*
1560. P. virgatum, *Linn.* July–Aug. 3 to 4 f. 4. Ky. *St.*
1561. P. capillare, *Linn.* Aug. 1 to 2 f. 4. cf. W.
b. var. sylvaticum, *Torr.* Dry woods. O.
1562. P. laxiflorum, *Lam.* ⊙. Fields. Germantown, Ohio. *Frank.*
1563. Setaria glauca, *Beauv.* Bottle grass. July–Aug. 18 i. ⊙. Intr. rd. &c. O.
1564. S. verticillata, *Beauv.* Bristle grass. July. 18 i. ⊙. Sandy grounds. Intr. Cin. O. *Colby.*
1565. Piptatherum nigrum, *Torr.* Black-seeded millet grass. Aug. 2 to 3 f. 4. Rocky hills, Ky. *St.*
1566. Digitaria sanguinalis, *Scop.* Crab grass. Aug.–Sept. 1 to 2 f. ⊙. cf. &c.. O.
1567. D. glabra, *Roem.* Smooth finger grass. Aug.–Sept. 1 f. ⊙. Sandy fields, Cin. O. *Colby.*
1568. D. filiformis, *Ell.* Thread-stem finger grass. Aug. 1 to 2 f. ⊙. Sandy fields, Ky. *St.*
1569. D. serotina, *Michx.* June–Aug. 12 to 18 i. ⊙. Wet places. *Muhl.* Canal banks, O.?
1570. Ceresia fluitans, *Pers.* Floating ceresia. Oct. 1 to 3 f. ⊙.? In river swamps. Ky. *St.*
1571. Beckmannia crucæformis, *Juss.* July. Plt. *Jas.*
1572. Cenchrus tribuloides, *Linn.* Hedge-hog grass. July–Aug. 18 i. ⊙. Sandy soils. Louisville. *M'Murt.*
1573. Paspalum ciliatifolium, *Michx.* Sept. 18 i. 4. Sandy fields. Ky. *St.*
1574. P. plicatulum, *Michx.* Ky. *St.*
1575. P. læve, *Michx.* Aug. 1 to 2 f. 4. md. Louisville. *M'Murt.*

1576. Tripsacum dactyloides, *Linn.* Sesame grass. Aug. 5 to 7 f. 4. md. Louisville. *M'Murt.* W. *Bk.*

Div. III. Avenaceæ.

1577. Stipa juncea, *Pursh.* Feather grass. Aug. 4. Mo. Ter. *Nutt.* N. W. Ter. *Houghton.*

1578. S. parviflora, *Desf. Nutt.* 1 to 2 f. 4. Plains of Missouri. *Nutt.*

1579. S. sericea, *Michx.* Sept. 2 f. 4. Mo. Ter. Plt. *Jas.*

1580. S. membranacea, *Pursh.* June–July. 2 to 3 f. 4. Missouri banks. *Bradbury.* Grassy plains, Mo. Ter. *Nutt.* Stony hills, O. *Frank.*

1581. Aristida pallens, *Linn.* Mo. Ter. *Nutt. Jas.*

1582. Calamagrostis mexicana, *Nutt.* Aug. 3 to 4 f. 4. bg. West to Mich. *Bk.*

1583. C. confinis, *Spreng.* Germantown, O. *Frank.*

1584. Anthoxanthum odoratum, *Linn.* Sweet-scented vernal grass. June–Aug. 1 f. 4. Moist meadows. Intr. Cin. O. *Frank.*

1585. Aira flexuosa, *Linn.* Hair grass. June. 1 to 2 f. 4. sw. W. *Bk.* Mich. *Houghton.*

1586. A. capillacea, *Lam.* 8 i. Slate hills and sandy pastures. *Pursh.* sw. Germantown, O. *Frank.*

1587. A. mollis, *Muhl.* Soft hair grass. Ap.–May. 1 to 2 f. Banks of the Miami canal, &c. *Frank.* Ky. *St.*

1588. Holcus lanatus, *Linn.* Soft grass. July. 18 i. 4. Wet meadows. N. W. Ter. *Houghton.* W. *Bk.*

1589. Danthonia spicata, *Beauv.* Wild oats. June–Aug. 1 to 2 f. 4. Woods and fields. Ky. *St.* Cin. *Colby.* W. to Mich. *Bk.*

1590. Arrhenatherum kentuckiensis, *Torr.* 4. Ky. *St.*

Div. IV. Festucaceæ.

Poa. Meadow grass.

1591. Poa annua, *Linn.* Ap.–Aug. 6 to 8 i. ⊙. Fields. Ky. *St.* O. *Frank.* St. L. *Bk.*

1592. P. pungens, *Torr.* Ap. 18 i. 4. Rocky woods. Ky. *St.* O. *Frank.*

1593. P. pratensis, *Linn.* May–July. 2 to 3 f. 4. Intr. md. Ky. *St.* Cin. O. *Colby.*

1594. P. parviflora, *Pursh.* July. 12 to 18 i. 4. sw. Ky *St.*

1595. P. trivialis, *Linn.* July. 2 to 3 f. 4. Wet md. Cin. *Colby.* Ky. *St.*

1596. P. compressa, *Linn.* Blue grass. June–July. 12 to 18 i. 4. Fields and woods. Ky. *St.* Cin. *Colby.* St. L. *Bk.*

1597. P. serotina, *Ehrh.* One of the grasses called *red-top.* June. 2 to 3 f. 4. Wet md. *Bk.* Woods and fields, Germantown, O. *Frank.*
1598. P. nervata, *Willd.* June. 3 to 4 f. 4. Wet. O. Ky.
1599. P. obtusa, *Muhl.* Aug. 3 to 4 f. 4. Swamps, &c. Germantown, O. *Frank.*
1600. P. canadensis, *Torr.* July. 3 to 4 f. 4. Swamps. Cin. *Colby.*
1601. P. capillaris, *Linn.* July–Aug. 1 f. ⊙. Sandy fields. Ky.? *St.*
1602. P. pectinacea, *Michx.* July. 8 to 12 i. ⊙. Sandy fields. Ky. *St.*
1603. P. reptans, *Michx.* July–Aug. 6 to 8 i. ⊙. Sandy banks. rb. W.
b. var. cæspitosa, *Torr.* St. L. *Bk.*
1604. P. eragrostis, *Linn.* July–Aug. 12 to 18 i. ⊙. Sandy fields, pastures, &c. O. Ky.
1605. P. airoides, *Nutt.* 4 to 5 f. Depressed situations. Mo. Ter. *Nutt.*
1606. P. multicaulis, *Raf.* Louisville. *M'Murt.* Ky. *St.*

Festuca. Fescue grass.

1607. Festuca tenella, *Willd.* June. 8 to 12 i. ⊙. Sandy fields. Ky. *St.*
1608. F. elatior, *Linn.* June. 3 to 4 f. Wet md. Ky. *St.*
1609. F. pratensis, *Huds.* June–July. 1 to 2 f. 4. md. Ky. *St.*
1610. F. nutans, *Willd.* June. 3 f. 4. Woods and hills. W. *Bk.*
1611. F. spicata, *Pursh.* June. 1 f. Banks of the Missouri. *Nutt.*
1612. F. clandestina, *Pursh.* 8 i. Cin. O. *Colby.*
1613. Dactylis glomerata, *Linn.* Orchard grass. June. 2 to 3 f. 4. md, &c. Ky. *St.* Cin. O.
1614. Kœleria nitida, *Nutt.* 8 i. ⊙? Plains of the Missouri. *Nutt. Jas.*
1615. K. truncata, *Torr.* June. 2 f. 4. Dry woods. Ky. *St.*

Bromus. Brome grass.

1616. Bromus secalinus, *Linn.* Chess. June. 2 to 3 f. ⊙. cf. Intr. O. Ky.
1617. B. purgans, *Linn.* Aug. 2 to 4 f. 4. Wet md. Germantown, and Cin. O. *Frank.* Dayton, O.
1618. B. ciliatus, *Linn.* June. 3 f. 4. River banks. Cin. O. *Colby.* Ky. *St.*
1619. B. pubescens, *Muhl.* June. 4 f. 4. Woods. Ky. *St.*

1620. B. mollis, *Linn.* June. 2 f. ♂. Fields. Ky.? *St.*
1621. B. altissimus, *Pursh.* June. 7 f. ♃. Banks of the Missouri. *Pursh.* Mo. Ter. *Nutt.* Cin. O. *Colby.*
1622. B. arvensis, *Linn.* June. 2 to 3 f. ☉. cf. Hook. Bri. Fl. p. 49. Meadows, Germantown, O. *Frank.* Intr.?

1623. Uniola latifolia, *Michx.* Aug. 2 to 3 f. ♃. Ky. *St.* Cin. O.
1624. U. gracilis, *Michx.* Aug. 3 to 4 f. ♃. Sandy swamps. Ky. *St.*
1625. U. spicata, *Linn.* Aug.–Sept. 18 i. ♃. Salt marshes, Mo. Ter. *Jas.*
1626. Glyceria fluitans, *Brown.* June–July. 3 to 5 f. ♃. Wet grounds. Ky. *St.* Cin. *Colby.* N. W. Ter. *Houghton.*
1627. Melica speciosa, *Muhl.* Melic grass. June. 3 to 4 f. ♃. Ky. *St.* Cin. *Colby.*
1628. M. diffusa, *Pursh.* June. ♃. Ky. *St.*
1629. Tricuspis seslerioides, *Torr.* Larger red-top. Aug. 4 to 5 f. ♃. Sandy fields. dp. Louisville. *M'Murt.* Ky. *St.* Middletown, O.
1630. Sesleria dactyloides, *Nutt.* Moor grass. May–June. 4 to 5 i. ♃. Grassy plains of the Missouri. *Nutt.* Plt. *Jas.*
1631. Diarrhena americana, *Torr. Beauv.* 3 to 4 f. ♃. Banks of the Ohio. *Raf.* Miami country. Festuca diandra, *Michx.*

Div. V. Chlorideæ.

1632. Chloris secundus, *Pursh.* ♃. Upper Louisiana. *Bradbury.*
1633. Eleusine indica, *Lam.* Wire grass. July.–Nov. 1 to 2 f. ☉. cf. Cin. *Colby.* Germantown, O. *Frank.*
1634. Oxydenia attenuata, *Nutt.* Aug. 2 to 3 f. ☉. River banks. Ky. *St.*
1635. Atheropogon apludoides, *Muhl.* Aug. 18 i. ♃. Rocky hills. W. *Nutt.*
1636. A. oligostachyum, *Nutt.* 8 to 12 i. ♃. Plains of the Missouri. *Nutt.*

Div. VI. Hordeaceæ.

1637. Hordeum jubatum, *Linn.* Squirrel-tail grass. June. 2 f. ♂. mh. Mo. Ter. Plt. *Jas.* Calcareous islands of Lake Michigan. *Nutt.*
1638. H. pusillum, *Nutt.* Dwarf barley grass. 4 to 6 i. Saline plains of the Missouri. *Nutt.* Ky. *St.*
1639. Triticum repens, *Linn.* Couch grass. Quack. July. 2 f. ♃. Fields, W. *Bk.*

1640. Elymus virginicus, *Linn.* Lime grass. Wild rye. July–Aug. 3 to 4 f. 4. River banks, &c. W.
1641. E. canadensis, *Linn.* Canadian lime grass. Aug. 3 to 4 f. 4. River banks, &c. Mar. O.
b. var. glaucifolius, *Torr.* July. St. L. *Bk.*
1642. E. villosus, *Muhl.* July. 2 to 3 f. 4. Hills. Germantown. O. *Frank.*
1643. E. hystrix, *Linn.* July. 3 f. 4. rs. Cin. *Colby.*
1644. E. striatus, *Willd.* June. 8 i. 4. sw. *Bk.* July. 3 to 4 f. 4. *Eat.* Cin. *Colby.* S. Croix river, N. W. Ter. *Hough.*
1645. Spartina cynosuroides, *Willd.* Marsh grass. Aug. 4 to 10 f. 4. wp. md. Ky. *St.* Plt. *Jas.* Wet prairie, Hamilton, O.
1646. S. glabra, *Muhl.* Smooth cord grass. Aug.–Sept. 3 to 5 f. 4. mh. W. *Bk.*
1647. Lepturus paniculatus, *Nutt.* June. 10 i. ☉. Saline plains, Mo. Ter. *Nutt.* Plt. *Jas.*
1648. Ægilops hystrix, *Nutt.* 4 to 6 i. 4. Arid plains of the Missouri. *Nutt.* Plt. *Jas.*

Div. VII. Saccharineæ.

Andropogon. Beard grass.

1649. Andropogon scoparius, *Michx.* Aug. 3 to 4 f. 4. dp. O. Ky.
1650. A. virginicus, *Linn.* Sept. 3 f. 4. Swamps. Ky. *St.*
1651. A. nutans, *Linn.* Aug.–Oct. 4 to 8 f. 4. dp. wp. O.
1652. A. furcatus, *Muhl.* Aug.–Sept. 2 to 3 f. 4. Rocky banks of streams. Ky. *St.* N. W. Ter. *Hough.*
1653. A. ciliatus, *Ell.* Sept. 3 f. 4. Pine barrens. *Ell.* Ky. *St.*

Div. VIII. Oryzeæ.

1654. Zizania aquatica, *Lamb.* Wild rice. Water oats. Aug. 4 to 6 f. 4. In Water. Abundant in the Great Lakes. *Schoolcraft.* Dayton, O. *Dr. Locke.* The seed is an article of diet among the Western Indians.
1655. Z. miliacea, *Michx.* Aug. 6 to 10 f. 4. In water. Near Dayton, O., on Hoffman's prairie.
1656. Oryzopsis asperifolia, *Michx.* Mountain rice. April–May. 18 i. 4. Ditches, &c. Miami country. *Frank.*
1657. Leersia virginica, *Willd.* Rice grass. Aug. 2 to 4 f. 4. Wet woods. O.
1658. L. oryzoides, *Swartz.* White grass. Aug.–Sept. 3 to 5 f. 4. mh. wp. &c. Ky. *St.* St. L. *Bk.* Miami country.
1659. L. lenticularis, *Michx.* Catch-fly grass. July. 2 to 4 f. 4. Wet places, Germantown and Cin. *Frank.*

1660. Zea mays, *Linn.* Indian corn.
b. var. præcox, *Nutt.* Early Mandan corn. Cultivated among the Missouri Indians. *Nutt.*

Div. IX. Bambusinæ.

1661. Arundinaria macrosperma, *Michx.* Cane. April. 3 to 15 f. ♄. Louisville. *M'Murt.* Ky. *St.* Ark. *Jas.* var. gigantea, 30 to 40 f.

CCLXII. *CYPERACEÆ.*—The sedge tribe.

§ 1. *Cyperaceæ veræ.*

1662. Cyperus inflexus, *Muhl.* Aug.–Sept. 2 to 3 i. ☿. Banks of streams, margins of ponds. Ky. *St.* St. L. *Bk.*
1663. C. flavescens, *Linn.* Aug.–Sept. 8 to 12 i. ♃. Wet soils. Ky. *St.* O.
1664. C. nuttallii, *Torr.* Aug.–Sept. 5 to 12 i. ♃. Salt marshes. *Bk.* Ky. *St.*
1665. C. dentatus, *Torr.* Sept. 10 to 12 i. ♃. mh. Louisville, *M'Murt.*
1666. C. strigosus, *Linn.* Cyperus. Aug.–Sept. 2 to 3 f. ♃. Low wet grounds. mh. W.
1667. C. phymatodes, *Muhl.* Aug. 12 to 18 i. ♃. Moist grounds. Ky. *St.* Central O.
1668. C. mariscoides, *Ell.* Aug. 8 to 10 i. ♃. Rocky grounds. Cin. *Colby.* W. *Bk.*
1669. C. flavicomis, *Michx.* July. ♃. Boggy woods. *Bk.* Wet sandy places, Miami country. *Frank.*
1670. C. poæformis, *Pursh.* July. 8 i. Banks of rivulets, Germantown, O. *Frank.*
1671. C. alterniflorus, *Schw.* 1 f. ♃. River St. Clair. Mich. *Houghton.*
1672. Dulichium spathaceum, *Pers.* Galingale. Aug. 18 i. ♃. mh. &c. O.
1673. Kyllingia pumila, *Michx.* July. 3 to 6 i. ♃. Damp gravelly situations. Ky. *St.* Miami country.

§ 2. *Scirpeæ.*

Scirpus. Club-rush.

1674. Scirpus palustris, *Linn.* June. 1 to 2 f. ♃. mh. &c. Germantown, O. *Frank.* Louisville. *M'Murt.*
1675. S. capitatus, *Linn.* July. 8 to 14 i. ♃. bg. md. Ky. *St.* Cin. *Colby.* Central O.
1676. S. acicularis, *Linn.* June–July. 3 to 6 i. ♃. Muddy margins of ponds. W.
1677. S. intermedius, *Muhl.* Sept. 3 to 4 i. ♃. mh. Cin. O. *Colby.*

1678. S. tenuis, *Willd.* June–July. 8 to 12 i. 4. mh. Swamps. Ky. *St.* O.
1679. S. lacustris, *Linn.* Bull-rush. June. 4 to 8 f. 4. pl. mh. O. Ky.
1680. S. brunneus, *Muhl.* Aug.–Sept. 2 to 3 f. 4. Margins of ponds. O. Ky.
1681. S. atrovirens, *Muhl.* June. 2 f. 4. Wet md. Ky. *St.*
1682. S. capillaris, *Linn.* Aug. 8 i. ⊙.? Wet grounds.—Lovisville. *M'Murt.* O.
1683. S. autumnalis, *Linn.* July–Oct. 8 to 12 i. 4. Low woods. Ky. *St.*
1684. S. simplex, *Ell.* June. 8 to 13 i. 4. bg. &c. Banks of creeks. Germ. O. *Frank.*
1685. S. americanus, *Pers.* Aug. 3 to 5 f. *Eat.* 2 to 3 f. *Ell.* 4. Damp soils. Ky. *St.*
1686. S. maritimus, *Linn.* July–Aug. 3 to 4 f. 4. Salt marshes, usually. Mo. Ter. *Jas.*
1687. Tricophorum cyperinum, *Pers.* Red cotton grass. Aug. 3 to 5 f. 4. Wet grounds. Ky. *St.*
1688. T. lineatum, *Pers.* Aug. 2 to 3 f. 4. Swamps. Borders of ponds, Missouri. *Bk.* Cin. *Colby.* Mo. Ter. *Jas.*
1689. Eriophorum polystachyon, *Linn.* Cotton grass. July. 1 to 2 f. 4. Swamps. Louisville. *M'Murt.*
1690. Mariscus ovularis, *Vahl.* July–Aug. 6 to 18 i. 4. bg. and low grounds. Louisville. *M'Murt.*
1691. Fuinera squarrosa, *Michx.* Umbrella grass. Aug.–Sept. 1 to 2 f. 4. bg. Ark. *Jas.*
1692. Ryhnchospora alba, *Vahl.* Swamp rush. July–Sept. 12 to 18 i. 4. Swamps and bogs. Cin. O. *Colby.*
1693. R. glomerata, *Vahl.* July–Aug. 12 to 18 i. 4. bg. mh. O. Ky.
1694. R. laxa, *Vahl.* July. 3 to 6 f. 4. Swamps. Ky. *St.*

§ 3. *Caricinæ.*

Carex. Sedge. Sedge grass. Carex.

1695. Carex wildenovii, *Schk.* May–June. 8 to 12 i. 4. Rocky woods. Ky. *St.* Hills, Cin. O.
1696. C. squarrosa, *Linn.* May–June. 2 f. 4. bg. W. to Miss. *Bk.*
1697. C. muhlenbergii, *Schk.* May. 1 to 2 f. 4. Rocky woods. ow. Cin. O. Ky. *St.*
1698. C. multiflora, *Muhl.* May. 2 f. 4. Wet md. Ky. *St.*
1799. C. setacea, *Dew.* June–July. 18 to 30 i. 4. Wet. md. Ky. ?*St.*
1700. C. arida, *Torr.* June. 2 to 3 f. 4. md. Ohio and farther west. *Bk.*

1701. C. stellulata, *Good.* May. 8 to 18 i. 4. Wet grounds. Ky.? *St.*
1702. C. scirpoides, *Schk.* May. 6 to 12 i. 4 Wet md. Mich. Ter. *Houghton.*
1703. C. hirsuta, *Willd.* May. 12 to 18 i. 4. md. rs. West to Mich. *Bk.* Ky. *St.*
1704. C. buxbaumii, *Wahl.* June. 2 f. 4. Swamps. West to Michigan. *Bk.*
1705. C. digitalis, *Muhl.* May. 18 i. 4. Wet md. West to Mich. *Bk.* Ky. *St.*
1706. C. aurea, *Nutt.* May–June. 4 to 10 i. 4. Wet rocks. West to Mich. *Bk.* Mich. *Nutt.*
1707. C. varia, *Muhl.* April. 8 to 12 i. 4. Dry woods. O. Ky.
1708. C. pubescens, *Muhl.* May. 12 to 18 i. 4. Woods. Ky.? *St.*
1709. C. tentaculata, *Muhl.* May–June. 12 to 18 i. 4. Wet md. Central O.
1710. C. lupulina, *Muhl.* June. 2 to 3 f. 4. Swamps. Ky. *St.*
b. var. pedunculata, *Gray.* July. Shores of Lake Erie. *Gray.*
1711. C. folliculata, *Linn.* June. 18 i. 4. Swamps. Ky. *St.* Miami country.
1712. C. plantaginea, *Lam.* Ap.–May. 8 to 12 i. 4. Beech woods. O.
1713. C. anceps, *Muhl.* Ap.–May. 12 to 14 i. Dry woods. Ky. *St.* O.
1714. C. alba, *Hænke.* June. 4 to 10 i. Limestone hills. Ky. *St.*
1715. C. granularis, *Muhl.* May. 1 f. Wet grounds. Ky.! *St.*
1716. C. hystericina, *Willd.* May. 18 i. Wet grounds. Ky. *St.*
1717. C. limosa, *Linn.* June. 9 to 24 i. Swamps. Sault de Marie, Mich. Ter. *Houghton.*
1718. C. acuta, *Linn.* May. 2 f. Wet grounds. Ky. *St.*
1719. C. filiformis, *Linn.* 2 to 3 f. bg. West to Mich. *Bk.*
1720. C. vesicaria, *Linn.* May. 2 f. md. West to Mich. *Bk.*
1721. C. retrorsa, *Torr.* May. 2 f. About ponds. Ky. *St.*
1722. C. pellita, *Muhl.* May. 24 to 30 i. Wet grounds. Ky.? *St.*
1723. C. longirostris, *Torr.* 2 f. Wet md. West to Mich.—*Gray.*
1724. C. lacustris, *Willd.* June. 3 to 5 f. Swamps, &c. Near Cin. O.?

CELLULARES.

Tribe I. Filicoideæ. Fern-like plants.

CCLXIII. *EQUISETACEÆ.*—The horse-tail tribe.

The equisetums are slightly astringent and stimulating, diuretic and emenagogue. Lind. Nat. Syst. 308.

1725. Equisetum hyemale, *Linn.* Scouring rush. June–July. 1 to 2 f. ♃. ow. mh. rb. W. The infusion is said to be an efficacious remedy for strangury.

1726. E. palustre, *Linn.* Marsh horse-tail. May–June. 12 to 18 i. ♃. mh. Swamps. Near Lake Sup. *Houghton.* Virginia. *Bk.*

1727. E. sylvaticum, *Linn.* Wood horse-tail. May. 12 to 18 i. ♃. Low woods. Central O.

1728. E. limosum, *Linn.* Swamp horse-tail. Naked horse-tail. July. 2 to 3 f. ♃. Borders of swamps. mh. Lake Sup. *Houghton.* Hoffman's prairie, Dayton, O.

1729. E fluviatile, *Linn.* Great water horse-tail. Fertile stems 1 f. Sterile stems 2 to 5 f. ♃. Shores of Lake Sup. Buffalo. *Torr.*

1730. E. arvense, *Linn.* Corn horse-tail. April–May. Fertile stems 6 to 8 i. Sterile stems 12 to 18 i. Fields, &c. W.

1731. E. variegatum, *Smith.* Variegated horse-tail. July. 3 to 6 i. ♃. Woods on high grounds. Near Lake Mich. *Houghton.*

CCLXIV. *FILICES.*—The fern tribe.

The leaves of ferns generally contain a thick astringent mucilage, on which account they are considered pectoral and lenitive. The stem is bitter and astringent, anthelmintic, emenagogue and purgative. Lind. Nat. Syst. 311.

Poloypdium. Polypod.

1732. Polypodium vulgare, *Linn.* July. 6 to 10 i. ♃. Rocky woods. Ky. *St.* Mar. O. W. *Bk.*

1733. P. incanum, *Pursh.* July–Aug. ♃. Frond 3 to 6 i. Parasitic on the inclined moss-clad trunks of living trees. Ky. *St.* On rocks and trunks of old trees. Ky. Tenn. *Pursh.* Fl. ii. 659. I once met with this fern in a damp forest near Monroe, O., where it had crept to the height of 10 or 12 feet upon a large sycamore.

1734. P. hexagonopterum, *Michx.* July. 12 to 18 i. ♃. sw O. Ky.

1735. P. phlegopteris, *Linn. Bk.* P. connectile, *Willd.* Pale mountain polypod. July–Aug. 8 to 12 i. 4. sw. O. Ky.

1736. Onoclea sensibilis, *Linn.* Sensitive polypod. July. 12 to 18 i. 4. wp. Moist woods. O. Ky.

Aspidium. Shield fern.

1737. Aspidium acrostichoides. *Willd.* June–Aug. 12 to 18 i. 4. rs. sw. W. Used by some as a vermifuge.

1738. A. thelypteris, *Willd.* Marsh shield-fern. July. 12 to 18 i. mh. wp. &c. O.

1739. A. cristatum, *Willd.* Crested shield-fern. July. 12 to 18 i. Marshy woods. Central O.

1740. A. lancastriense, *Spreng.* July. 18 to 24 i. 4. Woods. Central O.?

1741. A goldianum, *Hook.* Goldie's shield-fern. July. 18 to 36 i. 4. Woods. Central O.

1742. A fragile, *Willd.* A tenue, *Pursh.* Slender shield-fern. June–July. 6 to 14 i. 4. sw. rs. &c. W.

1743. A marginale, *Willd.* Marginal shield-fern. July–Sept. 1 to 2 f. 4. Rocky woods. Ky. *St.* Shady argillaceous ravines, Wor. O.

1744. A. spinulosum, *Willd.* Prickly toothed shield-fern. July. 4. sw. (12 to 18 i. Central O.)?

1745. A. bulbiferum, *Willd.* July. 12 to 18 i. 4. Wet rocks. Ky. *St.* Limestone ledges, Central O.

1746. A. filix-mas, *Willd.* Male fern. July. 2 to 3 f. Shady banks. *Hook.* Ky. *St.* Vermifuge, tonic, astringent. Wood & Bache.

1747. A. asplenoides, *Wild.* July. 1 to 2 f. 4. sw. Mar. O.

Asplenium. Spleenwort.

1748. Asplenium rhizophyllum, *Willd.* Walking leaf. July. 4 to 10 i. 4. Rocks. O. Ky.

1749. A. angustifolium, *Michx.* July. 12 to 18 i. 4. Moist woods. sw. O. Ky.

1750. A. ebeneum, *Willd.* Ebony spleenwort. July. 6 to 10 i. 4, Argillaceous hill-sides. rs. O. Ky.

1751. A. trichomanes, *Linn.* July. 4 to 8 i. 4. Shady rocks. Ky. *St.* Near Cin. O. Resembles the preceding closely.

1752. A. thelypteroides, *Michx.* July. 1 to 2 f. 4. Shady banks of streams. O. Ky.

1753. A. ruta-muraria, *Linn.* Rock-rue. July. 2 to 4 i. 4. Rocks. Ky. *St.* Near Cin. O.

1754. A. montanum, *Willd.* Mountain spleenwort. July. 4 to 8 i. 4. Mountain rocks. Ky. *St.*

1755. Scolopendrium officinarum, *Willd.* Hart's tongue. July. 8 to 15 i. 4. sw. rs. Louisville. *M'Murt.* (?)
1656. Pteris aquilina, *Linn.* Brake. July. 2 to 6 f. 4. Dry woods. ow. O. Ky. The stem is anthelmintic, emenagogue, and purgative. Lind. 311.
1757. P. atropurpurea, *Linn.* Rock brake. July. 6 to 10 i. 4. Rocks. O. Ky.
1758. P. pedata, *Willd.* July. 6 i. 4. Louisville. *M'Murt.*
1759. Adiantum pedatum, *Linn.* Maiden-hair. July. 1 to 2 f. 4. sw. W. Pectoral, demulcent. Hoop. Dic. Raf. Med. Fl.
1760. Cheilanthes vestita, *Willd.* Lip-fern. July. 6 to 8 i. 4. Rocks. West to Rocky Mts. *Bk.*
1761. C. dealbata, *Pursh.* July. 2 to 3 i. 4. Crevices of rocks on the banks of the Missouri, 50 miles above its confluence. Rare. *Nutt.*
1762. Hypopeltis obtusa, *Willd.* July. 4 to 5 i. 4. Rocks. Ky. *St.*

Osmunda. Flowering fern.

1763. Osmunda interrupta, *Michx.* June. 1 to 2 f. 4. Low grounds. *Bk.* Louisville. *M'Murt.* Cin. O.
1764. O. cinnamonea, *Linn.* Aug. 2 to 5 f. 4. Low grounds. Swamps. sw. Central O.
1765. O. regalis, *Linn.* July. 3 to 5 f. 4. Wet woods, swamps. O. Ky. This fern has been given in 3 drachm doses for the rickets. Lind. 311.

1766. Ophioglossum vulgatum, *Linn.* Adder's tongue. June. 6 to 8 i. 4. Low woods. Ky. *St.* Fig. Bart. Fl. N. A. ii. 55.
1767. O. bulbosum, *Michx.* May. 6 i. 4. Low grounds. Ky. *St.* Fig. Bart. Fl. ii. 59.

Botrychium. Grape fern.

1768. Botrychium fumarioides, *Bk. Willd.* B. obliquum, *Muhl.* June. 9 to 12 i. 4. sw. O. Ky.
1769. B. virginicum, *Swartz. Bk.* June–July. 12 to 20 i. 4. sw. O. Ky.

CCLXV. *LYCOPODIACEÆ.*—The club-moss tribe.

Lycopodium. Club-moss. Ground-pine.

1770. Lycopodium carolinianum, *Linn.* July. Creeping. Peduncles 3 to 4 i. 4. Low grounds. Northern O.?
1771. L. clavatum, *Linn.* July. Trailing. Branches 4 to 6 i. high. 4. Pine woods. West to Mich. *Bk.* This plant

excites vomiting. Woollens when boiled with this, or with other species, acquire the property of becoming blue, when passed through a bath of Brazil wood. *M. Vastring.* Lind. 314.

1772. L. complanatum, *Linn.* July. Trailing 2 to 10 f. ♃. Woods. Ky. *St.*

1773. L. dendroideum, *Michx.* July. Erect, 6 to 8 i. sw. Ky. *St.*

1774. L. annotinum, *Linn.* July. Creeping. (Branches 6 to 8 i. high. *Bk.*) Branches 3 to 5 i. high. ♃. Slaty ravines. rs. Central O.

CCLXVI. *MARSILEACEÆ.*—The pepperwort tribe.

1775. Azolla caroliniana, *Willd.* Floating on water. Leaves radical. ☉. Louisville. *M'Murt.* Western states. *Nutt.*

Tribe II. Muscoideæ. Moss-like plants.

CCLXVII. *MUSCI*—The moss tribe.

In the fall and winter of 1832, I collected several species of moss, mostly from the damp slaty ravines near Worthington, Ohio. They were determined by Dr. Torrey of New York, (with the exception of Fontinalis,) and though quite limited in number, they are here subjoined.

1776. Bryum punctatum, *Schreb.* Erect. In damp shady places. Central O.

1777. Dicranum glaucum, *Hedwig.* Nov.–Dec. ½ to 1 i. Cæspitose. On the earth, logs, &c. Damp woods, ravines, &c. Central O.

1778. D. scoparium, *Hedwig.* Autumn and winter. 1 to 2 i. On rocks, the earth, &c. sw. O.

1779. Climacium dendroides, *Mohr.* 2 to 3 i. Damp shady places. O.

1780. Fontinalis capillacea, *Dicks.* Water moss. (Adhering to stones in running waters. 3 to 4 i. Mar. O. Miami country.)?

1781. F. antipyretica, *Spreng.* Syst. iv. 187. Pools near Dayton, O.?

1782. Neckera cladorhizans, *Hedwig.* Autumn. Creeping, on the trunks of trees. O.

1783. Polytrichum juniperinum, *Hedwig.* Hair-cap moss. May. 2 i. ♃. Dry woods. O.

1784. P. undulatum, *Hedwig.* 1 to 2 i. Central O.

1785. Arrhenopterum heterostichum, *Hedwig.* Autumn. Damp situations. Central O.

CCLXVIII. *HEPATICEÆ.*—THE LIVER-WORT TRIBE.

1786. Jungermannia multifida, *Linn.* 1 to 2 i. Swampy woods, Monroe, O.

1787. Marchantia polymorpha, *Linn.* Brook liver-wort. July. *g–y.* 2 i. 4. Wet shady rocks, in wells, &c. O. Tonic, demulcent, nutrient. *De Cand.* Lind. 322.

1788. M. hemispherica, *Linn.* 1½ i. Rocky grounds. O. (?) Valuable diuretic, and local diaphoretic. *Eberle.*

1789. Riccia fluitans, *Linn.* Fork-stems. June. Floating, 2 to 3 i. Plenty from Lake Superior to Boston, in water among lemnæ. *Eat.*

CCLXIX. *CHARACEÆ.*—THE CHARA TRIBE.

This order consists of a few obscure aquatic plants, found generally in stagnant pools. In Sprengel's Systema Vegetabilium, vol. iv. p. 345, (Ed. of 1827,) there are sixteen species of Chara enumerated, most of which occur in the temperate parts of the globe. I have not at present the means of comparing the plants which are described below, with foreign specimens, nor even with satisfactory descriptions. The specific names are therefore given more with a reference to present convenience, than with the expectation of their being ultimately retained.

1790. Chara vulgaris, *Willd.* Feather-beds. *Branchlets* or *leaves* 7 to 9 in a whorl, bearing verticilli of still smaller branchlets. *Stem* 12 to 18 inches high, branching. Odour fetid, colour dirty green above, orange or yellow below. This species forms dense beds in stagnant pools and ditches. Like the other species it is encrusted with carbonate of lime. July–Aug. ☉. O.

1791. C. flexilis, *Willd.* *Stems* seldom cæspitose, 18 to 24 inches high, moderately branching, smooth, semipellucid, effervesces slightly in muriatic acid; colour nearly brown; *branchlets* or *leaves* 4 to 7 in a whorl, from ½ to 2 inches in length, often branching; *internodes* 2 to 4 inches. July–Aug. ☉. Grows in clear still water, 2 miles south of Dayton, and 7 miles north of Cincinnati.

1792. C. squamosa, *Desfontaines.* (?) foliosa, *Willd.* (?) *Stem* solitary, calcareous and very brittle, sending off at different heights 2 or 3 branches at an angle near 35°; scabrous, striate, subsulcate, the younger portions armed with numerous whorls of minute foliaceous scales. *Branchlets* generally 13 in a whorl, from one half to three fourths of an inch long, involucred at their origin by a dense whorl of subulate scales. *Thecæ* 2, 3 or

4, on the inner side and lower half of each branchlet. On each branchlet there are from 4 to 7 whorls of nearly obsolete scales. Aug. 8 to 10 i. ⊙. In shallow, slow running water. Old River, Hamilton, O. Oolentangy River, Worthington, O.

1793. C. humilis, *mihi.* *Stem* calcareous, solitary and branching, scabrous, (not sulcate,) 2 to 3 inches high.—*Branchlets* 8 to 10 in a whorl, without an involucre, generally equalling the internodes which do not exceed three-fourths of an inch in length. Towards the summit of the stem, each branchlet bears 1 or 2 thecæ. Colour deep green. Aug. ⊙. Growing in the shallow water of Old River, with the last, which it resembles.

1794. C. sabulosa, *mihi.* Stone-wort. *Stem* with a few erect branches, subsulcate, papillose; *branchlets* generally 10, sometimes 8 in a whorl, without an involucre, near half an inch long, each with 2 to 4 verticilli of scales, in the axils of which, on the inner side of the branchlet, are contained the thecæ. *Internodes* near an inch long. Aug. ⊙. 18 inches high. Colour light pea green. Four or five plants generally grow in company in clear pools where the water is two or three feet deep. Dayton, O. The calcareous incrustation is unusually thick, and the stems remarkably brittle.

b. var. spiralis, *mihi.* *Stem* spirally sulcate; compared with the last, the branches are more divaricate, and the internodes and branchlets twice as long in proportion to the size of the stem. Pools near Dayton.

TRIBE III. APHYLLÆ. Leafless flowerless plants.

CCLXX. *LICHENES.*—THE LICHEN TRIBE.

1795. Cenomyce pyxidata. Autumn and winter. Cinereous *g.* ½ to 1 i. On the earth. Wor. O. (The names accord with the Synopsis Methodica Lichenum of Acharius.)

1796. C. bacillaris. Nov. *r.* ½ i. On the earth. Central O.

1797. C. coccifera. Autumn. *r.* ½ i. Earth. O.

1798. C. rangiferina. Rein-deer moss. March. Lichen cinereous. 2 to 4 i. Shady, rocky ravines. Wor. O. Earth. In colder regions this lichen grows much more luxuriantly. The rein-deer subsists upon it during the Greenland winter.

1799. Peltidea canina. In fruit at all seasons. Lichen bluish cinereous, or greyish green. 1 to 2 i. On the earth, among mosses, in damp rocky situations. O.

Qualities like the Iceland moss, to which it is pretty closely allied.

1800. Sticta pulmonacea. Lungwort. Yellowish cinereous. 1 to 2 i. On the bark of trees. W. Tonic, demulcent, nutrient, like the Iceland moss. (Cetraria islandica. Lind. Nat. Syst. 329.)

1801. Usnea florida. Greenish grey. 2 to 3 i. Winter. On the branches of trees. W.

1802. U. strigosa. Dirty cinereous. 2 to 3 i. On the trunks and branches of dead trees. Dayton, O.

CCLXXI. *FUNGI.*—The mushroom tribe.

A most extensive natural order, embracing an almost indefinite number of species, that hold their rank in the lowest grades of the vegetable kingdom. They occur plentifully in the Western States; but (were it possible to do it) it would not comport with the design and limits of this publication to give a synopsis of them.

CCLXXII. *ALGÆ.*—The sea-weed tribe.

This order embraces those obscure productions of the aqueous element, which are known under the names of *sea-weed*, *frog-spittle*, *river-hair*, and *green scum*. Our fresh water algæ have received very little attention, though they are met with in every fountain and stagnant pool. They make the most delicate and beautiful specimens, when properly preserved. In fitting them for the herbarium, the following method may be pursued.

Cut a sheet of writing paper into 8, 16 or 32 equal pieces, according to the proposed size of the specimens. Wash the algæ by gently moving or shaking them inwater;—detach enough for a specimen, carry a piece of paper underneath, and raise it slowly from the water. By a short exposure to the air or to sunshine, the algæ will become so dry as to be in no danger of adhering to the leaves of a port-folio. They may then be pressed and thoroughly dried, between folds of bibulous paper, like other plants. (See West. Jour. Med. Phys. Sci. viii. 29.) If these manipulations are skilfully accomplished, the minutest filaments are elegantly displayed upon the paper, and remain thereunto permanently attached. The green scum that is often seen on stagnant waters, may be fished up at once by paper without previous washing. In my botanical rambles through the Miami country, last season, I collected and preserved in this manner near a dozen submersed, and two or three floating species.

REFERENCE TO AUTHORITIES.

WISHING to present this synopsis in a small compass, I remarked in the preface, that the authority for specific names, when not quoted, might be found in Eaton's Manual of Botany. After the first two sheets were printed, I came to the determination of making the usual references to authors. The previous omissions are here supplied, excepting the references to Linnæus. The figures refer to the species.

Species number 1, 2, and 3, Willd. 9, Michx. 16, 17, 18, De Cand. 20, 21, 24, Michx. 25, Willd. 26, Nutt. 27, Walt, 29, Nutt. 30, Big. 33, Pursh. 35, 37, Willd. 38, Walt. 40, Michx. 42, Nutt. 45, De Cand. 46, Rose. 49, 52, 53, De Cand. 57, Muhl. 58, Lam. 59, Willd. 60, Pursh. 61, Michx. 64, Brown. 67, Raf. 68, Willd. 70, Salis. 73, 74, Michx. 75, Willd. 76, Nutt. 79, Eat. 80, Big. 81, L'Herit. 82, Willd. 83, Michx. 84, Nutt. 86, Willd. 87, Ait. 90, Willd. 91, Michx. 92, Muhl. 94, Bart. 100, Pers. 101, Hook. 103, 104, 105, 106, Willd. 107, 108, 109, Michx. 110, Willd. 111, 112, 113, Nutt. 114, Walt. 115, 120, Michx. 123, Nutt. 124, Smith. 125, Nutt. 131, Willd. 132, Ait. 134, Pursh. 135, De Cand. 137, Willd. 138, 139, 140, Michx. 141, 142, 149, Willd. 150, Pursh, 154, Michx. 155, Nutt. 157, Willd. 159, Michx. 161, 162, 163, Vent. 164, 165, 166, Willd. 167, Lam. 169, 170, Willd. 171, Pursh. 175, Michx. 176, 177, Vent. 178, 179, Michx. 180, Willd. 184, Michx. 186, 187, Pursh. 188, Raf. 190, Willd. 191, Lam. 193, Muhl. 194, 195, Willd. 196, Nutt. 197, 199, Michx. 200, Willd. 201, Michx. 203, Nutt. 204, Pursh. 206, Lam. 207, Muhl. 208, Willd. 209, Muhl. 211, Nutt. 214, Ait. 215, Roth. 216, Willd. 217, 218, Nutt. 219, Pursh. 220, Nutt, 221, Pursh. 222, Raf. 223, Willd. 224, Nutt. 225, Pursh. 227, Walt. 228, 230, Willd. 235, 236, 238, Nutt. 239, Pursh. 240, Willd. 242, 244, Michx. 245, Pursh. 247, Nutt. 248, L'Herit. 251, Walt. 253, Michx. 255, Willd. 258, Michx. 265, Willd. 267, Michx. 268, Lam. 269, Michx. 271, Ait. 273, 275, Willd. 276, Pursh. 278, Michx. 281, Ait. 283, Nutt. 284, Michx. 286, Brown. 287, 289, Willd. 291, Ehrh. 292, Ait. 295, Pallas. 296, Willd. 298, Mœnch. 299, Bart, 301, Pers. 304, Nutt. 306, Willd. 307, Walt. 308, Ait. 309, 310, Willd. 311, 312, Michx. 313, Willd. 316, Ait. 318, Pursh. 319, Marsh. 320, Michx. 321, Willd. 322, Michx. 324, Muhl. 325, Nutt. 328, 229, Pursh. 330, Nutt. 331, Pursh. 332, Nutt. 333, Michx. 334, Torr. 336, Willd. 337, Muhl. 340, Michx. 341, Willd. 342, Michx. 343, 344, Pursh. 345, Michx. 346, Muhl. 349, Nutt. 350, Michx. 351, Willd. 352, Ell, 353, Michx. 357, Willd. 358, Nutt. 360, Michx. 361, Willd. 362, Pursh. 363, Willd. 365, Michx. 366, Willd. 368, 371, 372, Nutt. 374, 375, Willd. 376, Torr. 377, Nutt. 378, Pursh. 379, Torr. 380, Willd. 381, Michx. 382, Pursh. 383, Nutt. 385, Pursh. 386, 387, Nutt. 388, Pursh. 390, 391, Nutt. 392, Michx. 396, Ell. 397, Eat. 398, Willd. 399, Mœnch. 400, Walt. 401, Ell. 402, Pers. 403, Nutt. 405, 406, Pursh. 407, Willd. 410, Walt. 413, 414, De Cand. 419, Willd. 420, Muhl. 421, 432, 434, Willd. 436, 437, 438, Michx. 439, 440, Willd. 441, Pursh. 442, Walt. 443, Nutt. 444, Willd. 445, Michx. 446, Ait. 447, Willd. 448, 449, 450, Michx. 452, Willd. 454, Bart. 456, Michx. 457, Willd. 458, Walt. 559, Michx. 461, Willd. 462, Wang. 463, Michx. 466, Walt. 467, Ait. 469, 472, Michx. 473, Willd. 474, Ait. 475, 478, 479, Willd. 481, Wangh. 482, 483, Pursh. 484, Muhl. 485, Willd. 486, Muhl. 487, Willd. 489, Michx. 491, Willd. 492, Ait. 493, 494, Michx. 498, Willd. 499, Ait. 502, 503, 504, 505, 506, 507, Nutt. 508, Willd. 509, Pursh. 510, 512, Willd. 513, Jacq. 515, Michx. 516, Pursh. 517, Michx. 519, Willd. 521, Michx. 522, Nutt. 523, 527, Michx. 528, 529, Willd. 530, Juss. 531, Willd. 532, Nutt. 523, Willd. 534, 535, 537, Pursh.

INDEX TO THE GENERA.

	No.				
Abies	1386	Argemone	68	Cardamine	106
Acalypha	524	Aristida	1581	Cardiospermum	545
Acer	546	Aristolochia	248	Carduus	823
Acerates	1096	Arnica	848	Carex	1695
Achillea	1027	Aronia	300	Carpinus	473
Acnida	683	Arrhenatherum	1590	Carya	502
Aconitum	78	Arrhenopterum	1785	Cassia	416
Acorus	1520	Artemisia	1030	Castanea	464
Actæa	80	Arum	1515	Catalpa	1258
Actinella	976	Arundinaria	1661	Caulinia	1521
Actinomeris	984	Asarum	250	Ceanothus	536
Adiantum	1759	Asclepias	1086	Celastrus	529
Ægilops	1648	Ascyrum	180	Celtis	439
Æsculus	540	Asimina	135	Cenchrus	1572
Agave	1401	Aspidium	1737	Cenomyce	1794
Agathyrsus	816	Asplenium	1748	Centunculus	1172
Agrimonia	270	Ater	857	Cephalanthus	1054
Agrostemma	629	Astragalus	366	Cerastium	641
Agrostis	1535	Atheropogon	1635	Ceratophyllum	731
Aira	1585	Atriplex	679	Cercis	423
Aletris	1467	Azolla	1775	Ceresia	1570
Alisma	1390	Azalea	750	Cineraria	952
Alliona	726	Baptisia	231	Chara	1790
Allium	1460	Barbarea	99	Chærophyllum	32
Alnus	471	Bartonia	234	Cheilanthes	1760
Alopecurus	1550	Batschia	1347	Cheiranthes	95
Alyssum	112	Beckmannia	1571	Chelidonium	82
Amarantus	666	Bellis	924	Chelone	1203
Amaryllis	1404	Berberis	146	Chenopodium	672
Ambrosia	1014	Betula	498	Chianothus	1152
Ammannia	242	Bignonia	1256	Chimaphila	761
Amorpha	389	Bletia	1431	Chloris	1632
Ampelopsis	556	Blitum	685	Chrysanthemum	1013
Amphicarpa	396	Bœhmeria	431	Chrysocoma	922
Amsonia	1106	Bœrbera	954	Chrysopsis	849
Anagallis	1171	Botrychium	1768	Chrysosplenium	189
Androcera	1246	Brodiæa	1469	Cicuta	10
Andromeda	741	Bromus	1616	Cinna	1544
Andropogon	1649	Brunnichia	712	Circæa	232
Androsace	1158	Bryum	1776	Claytonia	656
Anemone	39	Buchnera	1192	Clematis	36
Angelica	21	Bumelia	737	Cleome	134
Anthemis	1025	Cacalia	940	Climacium	1779
Anthoxanthum	1584	Cactus	202	Cochlearia	128
Antirrhinum	1194	Cælestina	936	Clinopodium	1328
Apios	399	Cakile	119	Clitoria	394
Aplectrum	1419	Calamagrostis	1582	Collinsia	1211
Apocynum	1102	Calligonum	714	Collinsonia	1294
Aquilegia	72	Callitriche	230	Collomia	1148
Arabis	100	Callopogon	1417	Comarum	265
Aralia	1	Caltha	68	Commelina	1396
Arbutus	738	Calypso	1432	Comptonia	499
Archemora	14	Campanula	765	Conium	34
Arctium	822	Cannabis	434	Convallaria	1480
Arenaria	648	Capraria	1212	Convolvulus	1124

Conyza 846
Coptis 70
Corallorhiza 1418
Coreopsis 988
Corispermum 684
Cornus 1075
Coronopus 124
Corydalis 131
Corylus 466
Crategus 305
Croton 521
Crotonopsis 523
Crypsis 1552
Crypta 654
Cucubalus 631
Cunila 1306
Cuphea 237
Cupressus 1380
Cuscuta 1134
Cynoglossum 1357
Cyperus 1662
Cypripedium 1434
Dactylis 1613
Dalea 377
Dalibarda 268
Danthonia 1589
Darlingtonia 413
Datura 1243
Daucus 35
Decodon 241
Delphinium 73
Dentaria 109
Diapensia 1149
Diarrhena 1631
Diclytra 129
Dicranum 1777
Diervilla 1059
Digitaria 1566
Dioscorea 1501
Diospyros 1150
Diotis 690
Dipsacus 784
Dirca 255
Dodecatheon 1159
Donia 939
Dracocephalum 1313
Draba 114
Drosera 618
Dulichium 1672
Echinospermum 1356
Eclipta 977
Elæagnus 245
Elephantopus 831
Eleusine 1633
Ellisia 1373
Elymus 1640
Enslenia 1098
Epigæa 752
Epilobium 206
Epiphegus 1182
Equisetum 1725
Erigenia 6
Erigeron 894
Eriocaulon 1509
Eriogonum 713
Eriophorum 1689
Eryngium 8
Erythronium 1507
Euchroma 1227
Euonymus 530
Eupatorium 925
Euphorbia 508
Evolvulus 1133
Fagus 467
Ferula 26
Festuca 1607
Flœrkea 92
Fontinalis 1780
Fragaria 266
Frasera 1122
Fraxinus 1153
Fuinera 1691
Galardia 979
Galax 659
Galega 364
Galeopsis 1309
Galium 1042
Gaultheria 739
Gaura 210
Gentiana 1107
Geranium 567
Gerardia 1214
Geum 273
Gillenia 298
Glechoma 1322
Gleditschia 422
Glyceria 1626
Glycyrrhiza 387
Gnaphalium 852
Goodyera 1412
Gonolobus 1099
Gratiola 1198
Gymnocladus 421
Habenaria 1422
Hamamelis 195
Hedeoma 1325
Hedysarum 348
Helenium 986
Helianthemum 616
Helianthus 955
Heliopsis 987
Heliotropum 1362
Helonias 1451
Hepatica 52
Heracleum 24
Herpestris 1213
Hesperis 120
Heteranthera 1455
Heuchera 185
Hibiscus 156
Hieracium 788
Hippuris 229
Holcus 1588
Hordeum 1637
Hottonia 1161
Houstonia 1112
Hudsonia 614
Humulus 435
Hydrangea 1083
Hydrastis 51
Hydropeltis 91
Hydrophyllum 1364
Hyoscyamus 1245
Hypericum 164
Hypopeltis 1762
Hypoxis 1402
Hyssopus 1289
Ilex 733
Impatiens 574
Inula 847
Iresine 671
Iris 1405
Isanthus 1279
Isnardia 228
Isopyrum 71
Itea 194
Iva 1021
Jeffersonia 94
Juglans 500
Juncus 1438
Jungermannia 1786
Juniperus 1375
Jussieua 224
Justicia 1250
Kalmia 747
Kochia 688
Kœleria 1614
Krigia 806
Kuhnia 937
Kyllingia 1673
Lactuca 810
Lamium 1311
Larix 1389
Lathyrus 406
Laurus 144

Lechea	611	Mitella	190	Petalostemon	374
Lecontia	1517	Mollugo	635	Phaca	381
Leersia	1658	Momordica	774	Phacelia	1369
Lemna	1532	Monarda	1295	Phalangium	1468
Leontice	147	Monotropa	763	Phalaris	1548
Leontodon	805	Morus	444	Phaseolus	400
Leonurus	1310	Muhlenbergia	1546	Philadelphus	196
Lepidium	126	Myosotis	1353	Phleum	1545
Leptandra	1191	Myosurus	67	Phlox	1136
Lepturus	1647	Myrica	497	Phryma	1272
Lespedeza	340	Myriophyllum	231	Physalis	1233
Liatris	838	Myrrhis	31	Phytolacca	692
Ligusticum	20	Nasturtium	96	Pinus	1382
Ligustrum	1151	Neckera	1782	Piptatherum	1565
Lilium	1502	Nelumbium	90	Pisum	412
Lindernia	1201	Nemophila	1368	Planera	442
Linnæa	1060	Nepeta	1317	Plantago	776
Linum	620	Nicandra	1239	Platanthera	1427
Liparis	1428	Nicotiana	1240	Poa	1591
Liriodendron	143	Nuphar	88	Podophyllum	93
Lithospermum	1343	Nuttallia	155	Podostemum	730
Lobelia	758	Nymphæa	87	Podostigma	1097
Lonicera	1057	Nyssa	251	Pogonia	1415
Ludwigia	226	Obolaria	1120	Polanisia	133
Lupinus	404	Œnothera	212	Polemonium	1135
Luzula	1446	Onoclea	1736	Polycnemum	691
Lycopodium	1770	Onosmodium	1349	Polygala	576
Lycopsis	1352	Ophioglossum	1766	Polygonum	693
Lycopus	1281	Orchis	1421	Polymnia	1004
Lysimachia	1162	Origanum	1288	Polypodium	1732
Lythrum	238	Orobanche	1178	Polypogon	1543
Maclura	443	Orobus	383	Polytrichum	1783
Macrotys	79	Orontium	1519	Pontederia	1458
Magnolia	136	Orthocarpus	1226	Populus	489
Malva	160	Oryzopsis	1656	Portulacca	655
Marchantia	1787	Osmunda	1763	Potamogeton	1522
Mariscus	1690	Ostrya	474	Potentilla	257
Marrubium	1323	Oxalis	569	Prenanthes	793
Marshallia	982	Oxycoccus	757	Primula	1157
Martynia	1255	Oxydenia	1634	Prinos	734
Meconopsis	83	Oxytropis	385	Prunella	1329
Medeola	1488	Panax	4	Prunus	315
Medicago	326	Pachysandra	527	Psoralea	327
Melampyrum	1225	Pancratium	1403	Ptelea	566
Melanthium	1447	Panicum	1553	Pteris	1756
Mellissa	1324	Parietaria	433	Pulmonaria	1360
Melica	1627	Parnassia	193	Pycnanthemum	1282
Menispermum	148	Parthenium	1024	Pyrola	758
Mentha	1273	Paspalum	1573	Pyrus	314
Mentzelia	236	Passiflora	609	Quercus	445
Menyanthes	1119	Pastinaca	28	Queria	663
Microstylis	1430	Pedicularis	1222	Ranunculus	54
Mikania	938	Peltidea	1797	Rhamnus	533
Mimulus	1196	Penthorum	662	Rhexia	243
Mitchella	1056	Pentstemon	1204	Rhododendron	746

Rhus	559	Solea	608	Triglochin	1531
Rhynchospora	1692	Solidago	904	Trigonella	388
Ribes	197	Sonchus	819	Trillium	1492
Riccia	1789	Sophora	235	Triosteum	1061
Robinia	393	Sorbus	313	Triphora	1420
Rosa	286	Sparganium	1512	Tripsacum	1576
Rubus	278	Spartina	1645	Triticum	1639
Rudbeckia	967	Spermacoce	1055	Trollius	69
Ruellia	1252	Spergula	633	Troximon	808
Rumex	715	Spigelia	1123	Tullia	1308
Sabbatia	1121	Spiræa	292	Tussilago	944
Sagina	632	Spiranthes	1413	Typha	1510
Sagittaria	1391	Stachys	1319	Udora	1394
Salix	475	Stanleya	125	Ulmus	436
Salvia	1340	Staphylea	539	Uniola	1623
Sambucus	1073	Starkea	980	Uraspermum	29
Samolus	1173	Stellaria	636	Urtica	424
Sanguinaria	85	Sticta	1798	Usnea	1799
Sanguisorba	256	Stipa	1577	Utricularia	1174
Sanicula	7	Streptopus	1487	Uvularia	1489
Saponaria	630	Strophostyles	401	Vaccinium	753
Sarothra	182	Stylosanthes	373	Valeriana	785
Sarracenia	617	Symphitum	1351	Valerianella	786
Saururus	729	Symphoria	1063	Vallisneria	1395
Saxifraga	183	Symplocarpus	1518	Veratrum	1452
Schollera	1457	Synandra	1318	Verbascum	1247
Schrankia	415	Sysimbrium	122	Verbena	1259
Scirpus	1674	Talinum	658	Verbesina	1003
Scolopendrium	1755	Tanacetum	1028	Vernonia	832
Scrophularia	1193	Taxus	1379	Veronica	1183
Scutellaria	1330	Teucrium	1291	Viburnum	1064
Sedum	660	Thalictrum	44	Vicia	407
Senecio	945	Thapsia	19	Viola	588
Seseli	33	Thermia	386	Virgilia	392
Sesleria	1630	Thesium	254	Viscum	1085
Setaria	1563	Thlaspi	116	Vitis	552
Seymeria	1221	Thymus	1287	Wistaria	403
Shepherdia	246	Tiarella	192	Xanthium	1020
Sibbaldia	285	Tilia	161	Xanthoriza	81
Sicyos	775	Tofielda	1450	Xanthoxylum	565
Sida	151	Tradescantia	1398	Xyris	1400
Silene	623	Tragia	528	Yucca	1506
Silphium	1006	Trichodium	1549	Zapania	1269
Sinapis	127	Tricophorum	1687	Zea	1660
Sisyrinchium	1409	Trichophyllum	981	Zigadenus	1454
Sium	12	Trichostemma	1293	Zinnia	851
Smilax	1470	Tricuspis	1629	Zizania	1654
Solanum	1229	Trifolium	335	Zizia	16

Art. II.—Cathartics.

Remarks on the utility of Cathartics in several Diseases; designed to illustrate the leading principles which should regulate their use. By Lewellyn Powell, M. D., of Louisville, Ky.

The very general and too often indiscriminate employment of purgative medicines, both in professional and popular practice, together with the discrepant opinions entertained in regard to the extent and manner of their therapeutic application, have contributed to this class of remedial agents, an amount of interest which belongs to none other; and establish their claims to a grave and careful consideration on the very broadest basis.

Assuredly there is no class of remedies, within the wide range of the materia medica, to which our inquiries can be more profitably directed; for there is none which so abundantly supplies to us appropriate and efficient means for combatting disease. Few are the cases, and more especially of acute disorder in which they can be altogether dispensed with, whilst into the treatment of very many they constantly and largely enter.

A strong persuasion of their salutary powers in the alleviation and cure of diseases, has obtained such prevalent ascendancy in the public mind, as well popular as professional, that in almost every form of malady incidental to our nature, cathartics are instantly and habitually resorted to, and in numberless instances without any regard to those guides and checks which the laws of the economy and the teachings of experience, have imperatively prescribed.

If such be the fact, with the obvious result that the unskilful use of purgative medicines has been productive of much positive evil, it cannot be an idle task, nor (even though imperfectly performed) without some useful tendency to consider the practical bearings of this subject in regular connexion and to an extent in some degree commensurate with its importance.

To the performance of this task I am now to proceed, with the humble ability I may possess, in a course of (as it seems to me at least) pertinent remarks on the direct or physical agency of cathartics; the general symptoms independent of specific disease which ordinarily call for their employment; the specific differences subsisting between the various cathartics in common use, and the general rules, founded in part on these individual peculiarities, which should govern their administration, and their fitness and application as a class in the cure of several diseases.

1. The peristaltic action of the intestines, by which is meant a regular and consecutive series of muscular contractions, propagated along the tube from above downwards, is the physiological movement by which the contents of the bowels are carried forward in their course, and with the aid of the abdominal muscles finally expelled.

It is principally by quickening these peristaltic motions, that purgatives produce their effect, but something is also to be allowed to the serous and mucous exhalations which follow their impression; and which, by softening the fœcal contents of the bowels, and lubricating the surface of the canal, diminish resistance to the propelling power, and greatly facilitate the evacuation designed to be produced.

2. Without the existence of specific or well defined disease, there are occasionally present, some decided indications, which authorize and call for the employment of cathartics. The chief of these are sluggish and costive bowels, with feeble, depraved or irregular appetite; a loaded, yellow or brown tongue, thirst with a vitiated or any unusual taste in the mouth; fulness of the lower belly with or without tenderness on pressure, and a turbid and bilious or saffron colored urine.

The general intentions designed to be fulfilled by the use of purgatives, whether called for by the circumstances just stated, or by the peculiar exigencies of any special disease are, 1st. To clear the intestinal canal. 2. To correct unhealthy secretions. 3d. To promote a free or copious discharge from the intestinal exhalents, with the view to reduce the mass of circulating

fluid, and thus to lower excitement, and 4th. To lessen the determination of blood to particular parts.

3. While the whole class of cathartics agree in the general property of evacuating the intestinal canal, they are distinguished amongst themselves for modes of action and remote effects peculiar to each, and by which they are suited to the circumstances and indications which call for their use in the treatment of disease. For example, it is affirmed by writers on the Materia Medica, that calomel and gamboge expend their action chiefly on the upper portion of the intestinal tube; while colocynth and castor oil have a more extensive range of operation, and aloes exerts its cathartic power mainly upon the lower bowels. This remark, though to some extent true, is not to be received without qualification; thus I am disposed to deny that gamboge limits its operation to the upper portion of the intestine, or that its range of action is less extensive than that of colocynth or castor oil; while I am confident in the opinion, that calomel distributes its impression throughout the entire length of the canal, and that aloes too often excites and promotes the biliary discharge to allow of the conclusion, that the larger bowels only feel its influence.

Nor am I disposed to acknowledge the truth of a remark made by Dr. Eberle, that rhubarb and castor oil merely evacuate the ordinary fœcal contents of the bowels, for I have seen these articles excite a considerable amount of serous effusion into the intestines.

I make these remarks to show, that in my opinion, cathartics are less distinguished by the restriction or limitation of their action to different sections of the intestinal canal, than by their specific excitement of the different classes of secerning vessels which communicate with its cavity. Of these the biliary, the mucous, and the serous are the chief if not the only ones recognized in the present state of physiology; and cathartics differ remarkably and habitually in the degree in which they effect these different vessels, and in the amount of their respective secretions which they occasion to be discharged. Thus calomel specifically excites the liver and the

mucous follicles of the bowels, throughout their entire length, producing bilious and consistent stools; and gamboge, colocynth, elaterium, croton oil, and some others stimulate the serous exhalents to extraordinary action, occasioning copious watery evacuations as the common and natural result of their employment; while some few, and such are aloes and rhubarb, when given in moderate doses, and not frequently repeated, merely quicken the muscular actions of the intestines, with the effect of discharging its fœcal contents unchanged and unmixed; but frequently repeated, even aloes and rhubarb, have a range of operation beyond this, and will sometimes produce bilious, serous or mucous discharges, according to the greater or less excitability of the different sets of vessels by which they are respectively furnished. This distinction which is founded in nature, and attested by extensive observation, is highly important, and has strong claims to our attention, because of its bearings upon practical medicine. Thus if it be the object of the practitioner, simply to unload the bowels of accumulated fœces, aloes and rhubarb are the articles best adapted to his purpose; if to quicken the portal circulation, to emulge the liver and thoroughly evacuate the bowels be his main design, then calomel and its adjuvants will claim his preference; while if the intention is to reduce a sthenic diathesis, to subdue arterial action, or to promote the absorption of serous effusions into the cavities or cellular tissue, jalap, elaterium, croton oil, and such others are alone adapted to the end in view.

Besides the objects already stated to be accomplished by the agency of cathartics, they frequently operate their best effects in the cure of disease, on the principle of revulsion, in conformity to that law of the animal economy, which determines that an unusual excitement and afflux in the vessels of any one part of the system, subtracts in both these respects from the vessels of certain other parts; and hence the undoubted utility of purgative medicines in diseases of the head and the skin.

These general considerations point to the necessity of a sound discrimination in the choice of purgatives, and call for

the establishment of some general rules by which to regulate their administration, and to secure their appropriate and most beneficial action.

1st. We should ever select the purgative to be employed, with a nice adaptation of its peculiar powers to the special object contemplated in its use.

2d. If existing circumstances permit a choice of time, purgatives should be administered in the morning or at night, or on an empty stomach, by which they are better retained and more certainly and effectually operate, and for like reasons the period of remission or intermission should be selected in fever.

3d. Promote their free and easy operation by occasional draughts of warm gruel or chicken water, after the first discharge; and restrain their action when excessive by a resort to opiated clysters, and if necessary, to counter irritation by sinapisms to the surface.

4th. If drastic purgatives are employed, the harshness of their operation may be meliorated, by combining with them articles of a milder kind, without impairing the freedom and efficiency of the evacuations intended to be produced.

5th. In plethoric and robust subjects, when the bowels betray much insensibility to the impression of cathartics, recourse must be had to the lancet, the efficacy of which under these circumstances, in promoting the operation of purgative medicines, has long been observed.

The foregoing observations are essentially preliminary, and a necessary introduction to the chief design of this essay, which is to consider the use and value of purgatives in several of the diseases which most commonly demand the discipline of our art. Even when thus limited, the field of inquiry is sufficiently extensive and full of interest.

Among the therapeutic applications of cathartics, none is more frequent or of more decided utility, than to the management of fever.

To perceive their propriety in fever, as a leading measure of cure, we have but to advert to the early and constant de-

rangements of the alimentary canal, which universally obtain in this most prevalent disease; and to reflect upon the important functions, the lively sympathies and extensive connexions which give to the intestines a conspicuous place, and a controling power amongst the organs of the human frame. Where is the case of idiopathic fever, in which the evacuation of the primæ viæ is not urgently demanded by the earliest and most prominent of those symptoms, which nature holds out as signals of her distress, and as instructive hints to the physician? The loathing of food, the coated tongue, the fœtid breath, the constipated or irritated bowels, the unnatural offensive and acrid stools, the nausea and vomiting, all afford the plainest indications for their employment, whilst the universal experience of enlightened practitioners attests their efficacy.

Of the power and utility of cathartic medicines in the cure of typhus, we were long since advised by the judicious Hamilton, whose work on purgatives, will ever merit the profoundest attention of practioners as a faithful record of his own valuable experience, and an instructive guide in the use of an active class of remedies; which if not understandingly employed, are quite as apt to prove a source of mischief as the means of good.

The manner in which Dr. Hamilton attained a knowledge of the remedial powers of cathartics in typhus fever, is interesting of itself, tending as it does to challenge confidence in his statements, and impress them upon the memory of the reader. He informs us, that when he was first appointed physician to the Royal Infirmary at Edinburg, it was customary in that institution to treat typhus fever with mild antimonials as the chief remedies, the main object held before the practioner being the removal of torpor and spasm of the extreme vessels supposed to exist, while after the onset of the fever, the bowels were wholly negected, or purgatives administered with distrust and apprehension, lest they should rivet the spasm and perpetuate the disease.

Disappointed in the results of this treatment, Dr. Hamilton

wisely determined upon innovation, and gave to his patients a more active antimonial, and in larger doses than was usual in the practice of the Infirmary. The change was not without advantage; but not content with the notice of this general fact, he also discovered that the antimonial was beneficial in the cure of typhus just in proportion as it moved the belly; and hence was led to infer, that purgatives strictly so called, might usefully supersede the antimonials, with the great advantage of certainly attaining the purgative effect, without incurring the hazard of debility and exhaustion from violent vomiting or copious sweats.

A careful experience, extended and improved for the space of forty years, confirmed his conjectures and enabled him to declare with much certainty in regard to the treatment of typhus fever, that the full and regular evacuation of the bowels relieves the oppression of the stomach, cleans the loaded and parched tongue, mitigates thirst, restlessness and heat of surface, prevents the alarming symptoms too commonly developed in the advanced stage, more certainly and speedily promotes recovery, and diminishes the danger of relapse.

This sound practioner refers the superior utility of purgatives in typhus, to their operating throughout the whole extent of the intestinal canal, and acting directly upon an organ, the healthy functions of which are essential to recovery, in a manner that is consonant to the course of nature by propelling its contents downwards, and moving and completely evacuating the feculent matter, which from detention and diseased secretion has become highly offensive and hurtful.

There is reason to believe, that many amongst the readers of Hamilton, under a misapprehension of his views, have greatly abused this valuable class of medicines, and by the too frequent and very prodigal use of drastic cathartics, have rather aggravated than meliorated the disease; and have tended to bring into disrepute a course of practice, which under the limitations assigned by Hamilton himself, is entitled to our very highest respect, and is susceptible under judicious control of the most beneficial application.

While he strictly enjoins the daily and complete evacuation of the bowels throughout the whole course of fever, from its beginning to its termination, Dr. Hamilton expressly declares, that he is no advocate for exciting unusual secretion into the cavity of the intestines, and procuring copious watery stools, which make no salutary impression on the disease, and may alarmingly increase the debility of the patient.

The general principles thus perspicuously stated in the work of Hamilton, are so well illustrated and sustained by his clinical reports, that it is with peculiar satisfaction that I notice his able demonstration of a truth that bears with such weighty import upon the practice of our art.

Armstrong has also given to cathartics a prominent place in the treatment of typhus; and in his standard and classical work, we are furnished with the most judicious instructions as to the time and manner of their employment. It has been clearly demonstrated by these eminent writers, and abundantly proved in the common experience of practitioners, that the debility so strikingly characteristic of typhus, and which is generally regarded with so much apprehension, can only be meliorated and removed by unloading the system by evacuants, and that none are so safe and effectual as cathartics. It is, however, too frequently and fatally forgotten, that it is only through the earlier and excited stages of typhus, that active or frequent purging can be safely employed.

It cannot be too deeply impressed upon the mind of the physician, that when the aspect of the case betrays the approach of collapse, purgatives must either be substituted by enamata, or cautiously administered in very reduced doses, while the waning strength is at the same time sustained by diffusible stimuli of such kind and in such quantity, as the rate of declension in the general powers may seem to demand in each epidemic or every individual case.

In the autumnal fevers of our own country, whether of intermittent, remittent or continued type, cathartic medicines are of indispensable utility. It was the custom of Cleghorn, whose writings display an intimate acquaintance with tertian

fevers, as well as much practical sagacity, after premising blood-letting at the height or towards the decline of the paroxysm, to make use of the first remission or intermission, to evacuate the first passages, for (he remarks) the disagreeable taste in the mouth, loathing of food, giddiness, pain in the forehead, and loins, and other constant attendants of tertian fever, make it evident that the stomach and intestines are loaded with vitiated secretions, particularly morbid bile, and which if not early discharged, will induce very threatening symptoms in the course of the fever, such as violent vomiting, redoubling or continuation of the paroxysms, restlessness, ravings, pain, inflammation, gangrene of the small intestines, and lastly, sudden death.

To mitigate and prevent these distressing symptoms, much is accomplished by the daily use of cathartics, for the four or five first days of the disease. But an error is committed, and in the malarious districts of the south, too often a fatal error, in relying too long and too exclusively upon purgatives for the cure of intermittents. In discharging the vitiated feculence, and the morbid secretions which collect in the intestinal canal, cathartics perform a very necessary and salutary part in the treatment of these fevers; but they will not always prevent the recurrence of the paroxysm, which is far the most important point of treatment, in the insidious and malignant forms of tertian, which occasionally prevail in high latitudes and hot seasons. To guard against those dangerous revolutions, which stealthily, or with sudden violence, wreck and overwhelm the system, we can look with confidence only to the cinchona, or its active principle, the quinine, whose powers and application in malignant tertians have been so fully exhibited by Cleghorn and Alibert, and will satisfactorily appear to all who will resort to the sure test of experience.

In our bilious remittent or continued fevers, cathartics are equally considered as of indispensable utility: and no practitioner, who is untramelled by the dogmas of Broussais, would attempt the cure of these fevers without the aid of purgatives,

any more than he would treat pleurisy or pneumonia without a recourse to the lancet or antimony.

From Sydenham to Pringle, from Pringle to Rush, and from his day to our own, the most distinguished writers and the ablest practitioners have borne such ample and decided testimony to their suitableness and efficacy, in remittent and continued bilious fevers, that these points may now be considered as beyond all doubt or cavil.

Dr. Rush's history of the epidemic of 1793, is replete with proof and instruction in regard to the power and use of purgatives in the fevers of this family. And it is curious and gratifying to observe, how immediate and striking was the improved success of his practice in yellow fever, after he had laid aside the unsettled and discrepant methods of treatment then in vogue, and placed his confidence in mercurial purges.

But it is not enough for us to know the general fact, that purgatives are useful remedies in remittent fevers: It is equally important that we possess precise information as to the selection and administration of the purgatives best suited to the ends in view.

Cleghorn thought Epsom salts sufficient for the general purposes of this class of medicines, in the treatment of fever; and there is no doubt that in the milder forms and earlier stages of the disease, it will oftentimes supersede the necessity of a resort to more active means. But the vast majority of experienced physicians concur in recommending the mercurial purges; and by common consent calomel is made the leading ingredient in the cathartic compounds usually prescribed for the whole tribe of autumnal fevers.

Both because there is a continual reproduction of morbid bile, and because we are required to repeat our efforts as long as the disease persists, it is necessary to administer the purgatives every day to the extent of procuring from four to six free evacuations, of a dark, consistent, and fœtid material, the expulsion of which, it is agreed by all, is very generally attended with an abatement of the disease. I am here disposed to depart from an opinion offered by Dr. Chapman,

that "this peculiar matter is a product of diseased action, and previously existed in the intestines, in close adhesion to their surface;" nor do I regard it, with him, as a maintaining cause of fever, and on this account deem it necessary to expel it. But on the contrary I hold it to be a peculiar secretion chiefly mucous, but more or less mixed with bile, *specifically* excited by the mercurial compounds administered, and tending more than any other kind of discharge to deplete and unload the excited or congested vessels and glands mainly involved in the cause and burden of the disease. I would insist upon this point as one of much practical importance, for it is somewhat concerned in regulating the use of mercurial purges in the treatment of fever. Under the view of Dr. Chapman it has been stated as a rule of practice, to purge, and with calomel, until the alvine evacuations become of a healthy and ordinary bilious complexion; and accordingly, in the eager pursuit of this object, practitioners have confined their attention so exclusively to the intestinal secretions, as to overlook other circumstances, which no less certainly inform us of the progress of the disease, and have pushed their remedies beyond the point, where they might reasonably and with advantage be suspended or give place to others. In my apprehension of the subject, the alvine secretions are of subordinate relation and secondary importance to the condition of the nervous and circulating systems; and we shall find, in a course of careful observation, that not unfrequently, when the subdued irritation of the nervous, and the equal action of of the vascular system, indicate the rapid decline of disease, and the near approach of health, the dejections from the bowels are of the same general appearance, (calomel being administered,) as at the height of the disease; and the pertinacious attempt to accomplish the desired change, through the agency of mercurial purges, will too often result in the supervention of mercurial fever, painful salivation, broken health, and permanent infirmities of constitution.

Appropriate and valuable as purgative medicines unquestionably are in most forms and cases of fever, yet we must

not lose sight of the very important fact, that *inflammation* of the mucous membrane of the stomach and small intestines, though not the origin and essence of the disease, as assumed by the great French Pathologist, is nevertheless a frequent complication; and when we encounter cases of fever thus complicated, as characterized by vomiting, purging of thin matter, tender epigastrium, white or brown tongue, with red edges and disposed to dryness, much thirst, contracted pulse, and anxious countenance, it would be a departure from sound practice, and an abuse of medicine, to attempt their cure by a course of drastic or active purgatives.

It is under such circumstances that we may admit the force of Broussais' objections, who in pointing out these exceptions to the use and efficacy of purgatives in the cure of fevers, has entitled himself in a very considerable degree to be considered a reformer in medicine. Far better is it in cases of this description, to rely upon leeches and ptysans, than to trust to the ultra purgative plan, which is indiscriminately and unrelentingly pursued from first to last, with no definite object but a change in the stools and with no restrictions save ptyalism or death.

The utility of cathartics is by no means limited to the idiopathic fevers. They also hold a prominent and important place in the treatment of eruptive fevers. To some extent, the use of purgatives is demanded in the exanthemata, upon the same principles that call for their employment in ordinary remittent and continued fevers. In the former as in the latter, the primæ viæ are to be cleansed of their vitiated contents the force of arterial action is to be subdued and congestions of the brain and liver are to be prevented or removed.

But in the exanthematous fevers, there is another consideration which makes an additional requirement for the use of purgatives. The morbid action of the cutaneous capillaries may, and in many instances does, reach to such excess, that by reason of their sympathetic relations, excitement, or derangement of some kind is communicated to other important or-

gans. Accordingly, in small pox where to lessen the quantity of eruption is an indication of acknowledged importance, purgatives could not fail to be suitable and useful remedies, since by inviting excitement and afflux to the bowels, they relieve the skin of that excess of morbid action which is otherwise, and injuriously reflected upon other organs. Hence it is that, ever since the illustrious Sydenham established the fitness of antiphlogistic treatment in small pox, the use and efficacy of purgatives in this disease have been fully recognized.

With such modification as their respective circumstances will readily suggest, the foregoing remarks will equally apply to measles and erysipelas, in both of which diseases cathartic medicines are habitually and beneficially employed.

Cathartics have been variously regarded by physicians, in reference to scarlatina. By some they are prescribed with diffidence, and denounced by others, while by a third, and I would hope the most numerous class, they are esteemed most appropriate and valuable remedies in this formidable disease. To Hamilton belongs the credit of having weakened the prejudice, which at one time extensively prevailed against the use of purgatives in scarlitina. He rightly apprehended that the debility which is conspicuously present in this fever, and upon which alone was founded the distrust and dread of purgatives, did not more properly than in typhus contra-indicate their use; and on the contrary, in the one case as in the other, there was all reasonable ground to expect that the debility would be diminished, rather than increased under their operation. Directed by such such views he made common and extensive use of purgatives in the cure of scarlatina, and declares with much earnestness, that he never, in a long course of experience, witnessed sinking and fainting, as mentioned by some authors, and so much dreaded by them; neither had he observed revulsion from the surface of the body, and consequent premature fading, or, in common language, striking in of the efflorescence from the exhibition of purgatives; hence he employed them with confidence, no va-

riety of the disease, as appearing in different epidemics, or in the course of the same epidemic, deterred him from following out this practice to such extent as he deemed necessary; and by which he was generally enabled to mitigate and remove the pungent heat of surface, the violent head ache, the turgescence of the features, the flushing of the countenance, and the full and quick pulse.

Armstrong even to a greater extent is also the advocate of purgatives in the treatment of scarlatina; and I may safely declare that I have accomplished more, in the cure of this fearful malady, by the use of purgatives, when opportunely given, and regular and kindly evacuations could be procured, than by any other class of remedies.

The observations of Hamilton, unless perused carefully and with reflection, are in some degree calculated to mislead the reader; when this excellent physician remarks, that he never witnessed sinking and fainting from the exhibition of purgatives, nor observed the premature fading or striking in of the efflorescence, he certainly does not mean to affirm, that any kind and degree of purging can be practiced in scarlatina without danger of such consequences, for such an assertion would be contradicted by the experience of every practitioner who is at all conversant with the disease. Neither does he intimate, that no restraints are to be imposed upon the use of purgatives, when he tells us that in no variety of the disease, whether of different epidemics, or in the same epidemic, was he deterred from following out this practice, to the extent which he found necessary. Hamilton never witnessed sinking and fainting from the exhibition of purgatives, in his own practice, because he carefully confined their exhibition within the limits of moderation and prudence. He was content to give one or two brisk purgatives in the beginning, and avoided full purging in the subsequent periods of the disease, where, in his judgment, the only proper object was to "remedy the impaired action of the intestines, to secure the regular expulsion of their contents, and thus to pre-

vent the accumulation of fæces, which never fails to aggravate the symptoms, and to prove the source of further suffering to the patient." And he was not deterred from following out the practice to the extent which he deemed necessary, because this extent was regulated by a judicious choice of purgatives, and these skilfully adapted in their power, quantity, and mode of combination, to the various circumstances distinguishing the different epidemics and individual cases.

But however valuable purgatives are in the general treatment of scarlatina, emetics are justly entitled to take precedence of them, in the earlier stages of the disease, when marked by strong expressions of depression, and loss of balance in the nervous system, with a delayed, imperfect, or retrocent eruption. In determining to the surface, and disposing to evacuation by the skin, emetics would seem, more than any other remedies, to conform in their operation, to the natural tendency of this disease; which runs a determinate course, through a series of mysterious processes, that terminate in a peculiar and concentrated action of the skin; and on the developement of which there occurs a solution or suspension of the morbid movements.

Dr. Chapman well remarks, that in this disease "Nature works to the deliverance of the system," and it may be added, that she works under the direction of laws that may not be thwarted with impunity by the officious and ill-judged interference of Art. It is in such cases that the "nimia diligentia Medici" is too often conspicuously and mischeviously displayed, and where the practitioner, losing sight of the special nature and established tendencies of the disease, prematurely and inconsiderately bleeds and purges his patient to such a reduction of his constitutional energies, that the system is unable to develope the natural crisis of the disorder, and the morbid actions, as in the metastasis of gout and rheumatism, take an unnatural direction, and run on to an unfortunate issue.

It is thus that regular bred physicians, too exclusively occupied with the inflammatory nature of exanthematous fevers,

have sometimes treated them with much less success than has attended upon domestic and popular practice. The experience of almost every epidemic, has furnished examples thus humbling the pride of science. It is but a few years since a populous and wealthy valley in Virginia, was extensively ravaged by scarlatina, in spite of the lancet and calomel, with which it was encountered; whilst among the pauper population of the mountainous district which surrounded it, the epidemic was rendered comparatively harmless, by the diffusible stimulants and diaphoretic drinks, to which these simple people were led by the unbiassed observation of nature.

But here, let me not be misunderstood, it is very far from my intention, to recommend the indiscriminate use of emetics or stimulants in the treatment of scarlatina, or to detract, in any degree, from the fitness and value of blood-letting and purgatives, as remedies in this formidable affection; but my object is to insist, that while both classes of remedies may be necessary in different cases, and in different stages of the same case, it better accords with the pathology of the disease, to treat it in its incipient stage, before the eruption is established, with gentle emetics, aided by the warm bath and diaphoretic drinks, than to have an early resort to blood-letting and purgatives, eminently useful and indispensably necessary as the latter are when re-action has been fully developed, and more decidedly still, when vehemently expressed.

No fact is better established, than that the danger of scarlet fever is connected with two different conditions of the vital organs, viz. congestion and inflammation: the former dependant on a depressed state of the nervous system, and characterized by pale surface, small pulse, great lassitude, and black blood; the other associated with an excited state of the nervous system, attended with high vascular action, and obvious tendency to inflammation. Not only do these internal congestions exist in the inceptive stage of the exanthematous fevers, and plainly indicate the propriety of such remedies as distribute and equalize excitement and circula-

tion, but these congestions are liable to be fixed and quickened into inflammation, by the operation of that mysterious and unexplained property, (metastasis,) which forms part of the intimate nature of these diseases, whenever their tendency to a final and critical action by the skin is interrupted by a strong counteracting influence. By the tenor of these remarks, I do not mean to manifest any inclination to the errors of humoralism, nor to speculate upon purely hypothetical grounds; but I wish to represent, broadly and strongly, the necessity of regulating our remedial efforts in this class of diseases, with a due reference to a pathological principle, whose existence is acknowledged by the most eminent of modern authorities, and demonstrated by numerous facts, familiar to the experienced practitioner. Thus Professor Conolly, of the London University, in the course of some very judicious remarks, in illustration of several important points of pathology, observes, that "new directions given to certain portions of the blood, together probably with a transference of morbid actions in the nerves, may cause not only the conversion of gout to mania, but also of erysipelas of the scalp to phrenitis, or of erysipelas of the trunk to subinflammation of the mucous membrane of the intestinal canal; the sudden repulsion of some of the disorders of the scalp in children, as porrigo, is not unfrequently followed by meningitis. And the sudden recession of the cutaneous efflorescence in scarlatina, measles, and small pox, is commonly followed by inflammation of the lungs, or bowels, or brain.

For the sake of being explicit in a matter of such nice and critical concern, as the application of cathartics to the cure of exanthematous fevers, I have urged these general reflections, even to prolixity, and have swelled this essay so far beyond the limits which I had assigned it, as to preclude the remarks which it was my intention to have extended to the relationship between cathartic medicines and the bowel complaints, more especially cholera and dysentery. I forbear, however, to trespass longer upon the patience of my reader, and shall finish my task with expressing the hope, that the effort, feeble

and imperfect as it is, may at least contribute to awaken attention to so extensive and important a subject as I have attempted to discuss, and which merits investigation for its own sake.

Louisville, Kentucky, March, 1835.

Art. III.—Cyclopædia of Practical Medicine.

The American Cyclopædia of Practical Medicine and Surgery, a Digest of Medical Literature. Edited by Isaac Hays, M. D.

The first volume of this comprehensive work, the most learned of any that as yet has issued from the American Medical Press, is completed, and the first number of the second volume is now before us. We cheerfully commend it to our readers, as a rich repository of medical science, collected from every available source, and, in general, digested and arranged with care and sound professional common sense. As a specimen of the second volume, we lay before our readers the following extract on the sedative effects of the Tartrate of Antimony.

"*Tartar emetic as a contro-stimulant.*—Rasori, professor of clinical medicine at Milan, published in 1800 his views on the therapeutic action of tartar emetic in large doses, in controlling inflammatory excitement in certain phlegmasial diseases, particularly peripneumony. He denoted the condition of high excitement characterizing these diseases, as the *diathesis of stimulus;* and hence he called tartar emetic in large doses, as administered by him, a *contro-stimulant.* Peschier of Geneva, Laennec, and many other practitioners confirmed the general accuracy of his results; and no one at present calls in doubt the curative power of tartar emetic, in large doses, in the treatment of peripneumony. It has also been recommended, in the same doses, in several other diseases; such as hemoptysis, pleurisy, articular rheumatism, apoplexy, traumatic tetanus, encephalitis, phlebitis, puerperal peritonitis, &c. Numerous observations have incontestably proved, that tartar emetic, given by the method of Rasori, will control most acute inflammations; but it is doubted by many physicians, whether the practice is safe, and whether it does not infinitely more harm to the digestive organs, than good in subduing local inflammation in other parts. The particular mode in which it acts, according to the views of Rasori, will be detailed in another article: (see *Contro-stimulant.*)

Some have supposed its mode of action, when given by the method of Rasori, to be sedative; but its mere power to diminish inflammatory excitement by no means proves it to be so. We believe, with Broussais, that it acts as a powerful revulsive on the stomach; but, without entering, in detail, upon the theory of its operation, we shall use the term *contro-stimulant*, to express the mode of action, whatever it may be, of tartar emetic, when given in the manner recommended by Rasori.

"According to this last writer, tartar emetic, in large doses, so as to produce its contro-stimulant operation, is borne only in the sthenic or inflammatory condition of the organism, or, as he expresses it, during the existence of the diathesis of stimulus. This explanation of the tolerance of the remedy, in doses which under other circumstances would prove poisonous, is consonant with pathological principles; but while Trousseau admits that the remedy is never better supported than when the inflammatory symptoms are most intense, he nevertheless asserts that he has seen tolerance to be perfectly established in patients excessively weak. He, therefore, denies, that the inflammatory condition is essential to the tolerance of antimonials, and explains the fact that they are not well borne in health, by the circumstance, that a rigorous diet, an essential condition of tolerance, is not adopted. The different view of Trousseau on this subject may be explained by the fact that he prefers the use of the oxides, in obtaining the contro-stimulant effect of antimony, preparations which produce incomparably less irritation and disturbance of the system than tartar emetic.

"The chief disease in which Rasori has given tartar emetic as a contro-stimulant is *peripneumony*. His principles of treatment may be summed up under the following heads: 1. To treat the disease throughout by tartar emetic; 2. To adopt this medicine as the principal, and sometimes the only remedy in the disease; 3. To diminish by its use the number of bleedings, or to do away the necessity of this evacuation altogether; 4. To give the remedy in doses which formerly the boldest practioners never thought of employing; amounting to one or more drachms in the twenty-four hours, and to several ounces in the course of the disease, without producing either vomiting or purging.

"Rasori, and the Italian physicians, in treating peripneumony, generally give at first from ten grains to a scruple of tartar emetic, and increase the dose gradually to one or several drachms in the twenty-four hours, in proportion as the tolerance of the remedy is gradually established. Laennec, who with M. Kapeler, were among the first to call attention to the method of Rasori in France, adopted it with slight modifications. When a patient with peripneumony would bear a bleeding, Laennec began the treatment by drawing from eight to sixteen ounces of blood; and rarely repeated the venesection, unless in individuals attacked with diseases of the heart, or threatened with apoplexy or some other sanguineous congestion. He states, however, that he has frequently and rapidly cured intense peripneumonies without recourse to bleeding, though generally he resorted to it. Immediately after the bleeding, he gave a grain of tartar emetic in two fluid ounces

and a half of sweetened aromatic water, and repeated the dose every two hours, until six had been taken; after which the patient was allowed to rest for seven or eight hours, if the symptoms were not urgent, and a disposition to sleep was manifested. But if the disease was already advanced, the oppression great, the head seized, and both lungs affected, or if one of them was invaded throughout, he was in the habit of continuing the tartar emetic without interruption, until the symptoms were mitigated, and the stethoscope indicated an improvement. When, however, the agravating circumstances, above mentioned, were all united in the same case, his practice was to increase the dose of the antimonial to a grain and a half, two grains, or even two grains, and a half, but given always in the same amount of vehicle.

"Laennec remarks, that some pneumonic patients support tartar emetic, administered in this manner, without vomiting or purging. A majority, however, vomit several times, and have five or six stools the first day; but afterwards they experience but moderate evacuations, and often none at all. After the tolerance of the medicine has been established, it is asserted by Laennec, that the patients often become constipated, so as to require the use of purgative enemata.

"In describing this mode of practice, Laennec proceeds to remark, that, when evacuations continue to the second day, or when there is reason to believe that the tartar emetic will be supported with difficulty, he adds to the six doses to be taken in twenty four hours, one or two ounces of the syrup of diacodion, (syrup of poppies,) an addition which he admits is contrary to the theoretic views of Rasori, but which his experience has proved to be useful. He declares further that, in general, the effect of the tartar emetic is never more rapid than when it causes no evacuation whatever; though sometimes its good effects are accompanied by a general sweat. Though he considers frequent vomiting and abundant purging to be feared, on account of the weakness, and the irritation of the alimentary canal which they produce, yet he avers that he has effected remarkable cures, where the evacuations were very abundant. 'I have,' says he, 'very rarely met with pneumonic patients who could not support tartar emetic, and such cases occurred in my first trials; so that this inconvenience is attributable, perhaps, to the inexperience and want of confidence of the physician, rather than to the method itself. In many cases, where a patient would support, only tolerably, six grains of tartar emetic with syrup of diacodion, one day, I have given him the next day nine grains with perfect tolerance. At the end of twenty-four or forty-eight hours at most, and often at the end of two or three hours, a marked melioration of all the symptoms is obtained. Sometimes, even, a patient who appears to be doomed to certain death, is, at the end of a few hours, out of danger, without having experienced any crisis or evacuation, or any other notable change than a progressive and rapid improvement in all the symptoms; and the exploration of the chest explains the reason of the sudden change, by detecting all the signs of resolution.'

"Laennec states that effects equally striking may be obtained at all

stages of the disease, even when a great part of the lung is infiltrated with pus!

"From the moment an improvement takes place, Laennec conceives that the medicine may be continued with the certain result of completing the resolution, without inducing fresh commotions; a circumstance in which mainly consists the great practical advantage of tartar emetic over blood-letting as a remedy. By bleeding, he admits that we almost always obtain a diminution of fever, of oppression, and of bloody expectoration; but at the end of some hours, these symptoms again increase; and this often happens five or six times, after the employment of as many bleedings. Now Laennec affirms that he had never seen similar relapses under the use of tartar emetic; and that when this antimonial was employed the weakness during convalescence was never so protracted, or excessive, as when the patient was treated by repeated bleedings.

"We by no means subscribe to the accuracy of all the above views of Laennec, in relation to the tartar emetic treatment in peripneumony; but though his assertions may have been too general on some points, and his plan of practice too little regulated by the state of the alimentary canal, still the opinions of so distinguished an authority must always be viewed as important, and entitled to great respect.

"M. Peschier of Geneva, advocates the contro-stimulant use of tartar emetic in peripneumony, and in fluxions of the chest generally; but his mode of using it appears by no means precise, and not at all regulated by the state of the system, When a determination to the skin was manifested, he added nitric, muriatic, or acetic ether to the antimonial; and when there existed dysuria, and dry heat of the skin, he conjoined nitre. He generally began the treatment with six grains in the twenty-four hours, and increased the quantity three grains daily, until the dose reached twelve or fifteen grains, a quantity which he did not exceed, as this was found sufficient. In cases in which, from the great weakness of the patient, he was induced to direct so small a dose as a grain, or a grain and a half, it produced fatiguing effects, without any curative result. In none of the cases which he treated, was blood-letting, either general or local, employed, but blisters were occasionally resorted to.

"Without implicitly relying on the results obtained by Rasori, Laennec, and M. Peschier, from the use of tartar emetic as a contro-stimulant, their general tenour is sufficiently coincident to satisfy the reader of the remarkable controlling power of this remedy, when thus employed, over acute pneumonic inflammation. Still the question arises how far the practice is a safe one, and how far it may be used to replace the ordinary curative means, of general and local blood-letting, blistering, antiphlogistic medicines, demulcents, and anodynes. In determining this question, the more recent results deduced by M. Rayer from careful observations made on a number of pneumonic patients at the hospital La Charité, will have an important bearing, from the impartial manner in which they appear to have been conducted. M. Rayer arranges his observations under the three heads, of effects on

the digestive organs, on the organs of respiration, and on the circulation and blood.

"Effects on the digestive organs of pneumonic patients.—1. Tartar emetic, dissolved in a small quantity of sweetened vehicle, produces vomiting less easily than when it is dissolved in pure water, and assisted by the administration of warm and nauseating drinks.

"2. The tolerance of the remedy was obtained in a *few* patients from the first day, without any apparent reason for its want of action on the stomach or bowels. Now this tolerance is affirmed to take place in a *great number* of patients by Rasori, and in *many* by Laennec.

"3. The majority of the patients vomit on the first day, after having taken the first doses. They experience at first a general uneasiness with disposition to vomit, afterwards paleness, and contraction of the volume of the body. After vomiting, reaction and heat return in the course of half an hour or an hour. During the interval, the patient is pale, with a small concentrated pulse, and yet he declares himself to be better.

"4. Some patients, from irritability of the digestive organs, support the contro-stimulant method with difficulty, being affected with violent vomitings, colics, and twistings of the bowels.

"5. Tolerance is established more freely and permanently in relation to the stomach than to the bowels; many patients experiencing purging without vomiting after the first days.

"6. In patients with healthy stomachs, the vomitings and purgings were not preceded or followed by pains in the abdomen, and were not accompanied by any pain except that attendant on the act of vomiting. The next day the stomach and bowels were rarely affected with pain.

"7. The alimentary canal soon loses its power of tolerance; for if the treatment be discontinued for a day or two, the same doses, which had ceased to produce vomiting and purging, and even smaller doses, will reproduce them.

"8. Tartar emetic may be given for many days together in very large doses to some pneumonic patients, without producing any evident inflammation of the alimentary canal; but this is not always the case.

"9. If on the one hand, the generality of physicians have exaggerated the irritant properties of tartar emetic; on the other, the *contro-stimulists* have been guilty of an opposite exaggeration, far more dangerous.

"10. When it is wished to establish a tolerance of the remedy, it is better to augment the dose gradually, or even to diminish it, rather than to employ opiates, which gave rise to a factitious tolerance, masking the effects of the antimonial on the digestive organs.

"11. Tartar emetic, administered in large doses, produces sometimes inflammation of the stomach and bowels; but these artificial inflammations are, in general, less serious and obstinate than those generated without appreciable causes; and when they are not kept up by the too long-continued action of the remedy, nor aggravated by a pre-

vious affection of the stomach, they yield, with sufficient readiness, on the suspension of the remedy, or to the use of a few local bleedings.

"12. During the convalescence of pneumonic patients, in whom resolution is progressing, tartar emetic, in the dose of five or six grains, appears to excite the feeling of hunger. After tolerance has been established, digestion does not appear to be deranged by the remedy, when administered three hours before or after a meal. It may be proper to remark, that many of M. Rayer's patients were on half-diet.

"13. In this paragraph, M. Rayer reports the post-mortem appearances observed in the few pneumonic cases which he lost. These have been detailed in a preceding part of this article. (See p. 54.)

"Effects on the organ of respiration.—1. The effects of tartar emetic, even in large doses, upon the organs of respiration, vary according to the intensity of the peripneumony, and to the disturbance, more or less serious, which it impresses on the digestive organs. M. Rayer has seen peripneumonies disappear in forty-eight hours after repeated vomitings and purgings by tartar emetic. He has observed other cases in which the disease progressed, although there was a marked tendency to tolerance. In a considerable number of cases, the cough and bloody expectoration diminished in an evident manner, and in the following days the stethoscope detected the progressive march of resolution.

"2. By means of this treatment, and by the use solely of tartar emetic, many peripneumonies, both simple and double, were completely cured, and in as short a time as when treated by blood-letting.

"3. The good effects of tartar emetic are never more evident, according to the opinion of M. Rayer, and in opposition to that of Rasori, than when it produces abundant evacuations. Indeed, the absence of tolerance, signalized by Laennec as one of the contra-indications of tartar emetic, is, according to M. Rayer, on the contrary, oftener one of the conditions most favourable to its employment, provided the stomach be not inflamed.

"4. The first days of the use of tartar emetic in recent peripneumonies are distinguished by a decided melioration of the disease; but this improvement becomes afterwards less and less evident, from the tolerance of the remedy, and from the fact that those diseased conditions disappear first which are the least fixed.

"5. The property attributed to tartar emetic of augmenting the energy of interstitial absorption, so as to resolve pulmonary hepatizations after bleedings have lost their influence, as appeared to M. Rayer to be a very questionable one in the majority of cases.

"6. The quantity of tartar emetic necessary to effect the cure of peripneumony varies from several drachms to one or more ounces, according to the extent of the pulmonary inflammation, and the duration of the disease before the treatment is commenced.

"Effects on the circulation and blood.—When tolerance is established, the action of tartar emetic on the circulation is scarcely appreciable; on the contrary, when vomiting is about to take place, and during the existence of colicky pains, the pulse becomes concentrated. With regard to the buffy appearance so uniformily exhibited by the blood in

pneumonia, M. Rayer ascertained that this appearance was not modified by the tartar emetic treatment.

"M. Rayer sums up his results by declaring that, in his opinion, the treatment of peripneumony by tartar emetic, as an *exclusive method*, is inferior, in a majority of cases, to the treatment of blood-letting.

"Before resorting to the method of Rasori, Rayer further remarks, it is necessary to be satisfied as to the condition of the digestive organs. It must not be forgotten that many individuals have latent affections of the stomach, and that certain results of chronic gastritis in old persons, such as thinning and softening of the stomach, are always aggravated by tartar emetic. Moreover, this method is hurtful, when the pneumonia is complicated with gastritis. But when the integrity of the digestive organs is well ascertained, it will be proper, according to M. Rayer, to employ tartar emetic and bleeding concurrently in the treatment of peripneumony. This combined method he conceives to be preferable to all others at the commencement of pulmonary inflammations; but instead of *aiming to produce tolerance*, it is preferable, according to him, to *obtain abundant evacuations*. Six, eight, ten, or fifteen grains of the antimonial are considered sufficient by him to produce this result; it being unnecessary to increase the quantity daily until the dose reaches a drachm. He, accordingly, characterizes it as a blameable temerity to imitate Rasori, who has often given the almost incredible quantity of an ounce in the course of a day. Finally, M. Rayer recommends, that in proportion as resolution progresses, the dose of the tartar emetic should be diminished, having care always to continue it for some time after the disappearance of the crepitant rhonchus.

"We have presented thus fully the results of M. Rayer, on account of their intrinsic value, and of the precision with which they are reported. But we cannot admit all his therapeutic views, and particularly that one which asserts that the contro-stimulant action of tartar emetic is never more marked than when it produces copious evacuations, and that the establishment of tolerance is rather detrimental than useful to that action. The great authority of Laennec is opposed to it, and the observations of Rasori, M. Peschier, M. Trousseau, and of many other practitioners, establish a diametrically opposite conclusion. We admit the concurrent benefit of blood-letting, and cannot conceive how it could interfere with the curative operation of the tartar emetic. Dance agrees, on this point, with M. Rayer; but M. Trousseau states emphatically, as the result of his experience, that blood-letting in peripneumony, so far from assisting, impedes the operation of antimony. He asserts that resolution is not completed for a long time, when bleeding is employed; while it is never more rapid than under the sole influence of antimony. In short, he declares it as the chief merit of the cure of peripneumony by antimony, that there is *no convalescence*. Patients, according to him, are sometimes brought, in the course of a few days, from the brink of the grave, to a state of apparent health so satisfactory, that, without the indications of the stethoscope, it would be impossible to believe that there had existed a dangerous peripneu-

mony. Of fifty-eight pneumonic patients treated by M. Trousseau, none of whom were bled in the hospital, and five only before admission, but two died. The cases most rapidly cured by the antimony were precisely those in which the disease was most recent, the fever most vehement, the pulse most full and vibrating, the skin hottest, the oppression greatest, the local pain most acute, and the expectoration most bloody.

"Tartar emetic as a contro-stimulant has been given in *hæmoptysis* and *pleurisy*, but with doubtful advantage. Laennec contended that it had the power of controlling the inflammatory action in the latter disease; but M. Trousseau reports that, in ten cases in which he tried antimony in acute pleurisy, no reduction of the diseased excitement was obtained.

"According to Laennec, acute *articular rheumatism*, is, after peripneumony, the inflammatory disease in which tartar emetic in large doses appeared to him to be the most efficacious. The mean duration of rheumatism, treated by this curative plan, was seven or eight days; while, by the ordinary method of treatment by bleeding, &c., it is known to last from one to two months. The medicine, however, is less efficacious, where muscular and articular rheumatism are combined. Laennec sometimes though rarely observed relapses after articular rheumatism, when the medicine had not been discontinued; and he was obliged, in two cases only, to interrupt its use, because tolerance could not be established. Of thirteen rheumatic cases treated by Laennec, tartar emetic proved highly useful in eight, without effect in two, hurtful in one, and of doubtful utility in two.

"M. Rayer dissents from Laennec as to the value of the contro-stimulant practice by tartar emetic in rheumatism; and rests his dissent on the variable character and duration of this disease, which forbids the adoption of any opinion as rigorously exact, in favour of any particular plan of treatment. Upon the whole, he comes to the conclusion, in opposition to Laennec, that the plan by blood-letting, and by revulsives applied to the skin, is preferable to that by tartar emetic in large doses. Besides, tartar emetic is strongly contra-indicated in cases in which the rheumatic disease is partly seated in the digestive organs, or likely to be translated to them. Rayer concludes by remarking, 'that the employment of tartar emetic in large doses in rheumatism is more rarely indicated than in pneumonia; for the danger to life, in the latter disease, is such as to make it admissible to produce a momentary or sustained revulsion on the stomach and intestines; while it is by no means demonstrated that this is equally true with regard to rheumatism.'

"M. Trousseau reports his experience with the use of large doses of tartar emetic in acute articular rheumatism, and is of opinion that, when of service, it does good by operating as an emetic and cathartic, rather than as a contro-stimulant. Its good effects, however, are by no means so constant as in pneumonia; and so far from acting on the principle of tolerance, it is never so useful, according to him, in acute rheumatism, as when it produces vomiting and hypercatharsis. It is

on this account that M. Trousseau denies to the antimonials the possession of any special curative power in this disease, and attributes their efficacy exclusively to their action as evacuants.

"Laennec and other practitioners have employed contro-stimulant doses of tartar emetic in *apoplexy*. Of eleven cases treated on this plan, six were cured; but as blood-letting was used at the same time, it is impossible to determine the precise curative value of the tartar emetic. In some cases of apoplexy, Laennec has gradually carried the dose to a drachm and a half; but it should be recollected that, in consequence of the lesion of the nervous system which exists, the tolerance of the antimonial in this disease is often apparent, not real, and, therefore, cannot be held as proof of the safety of the stomach.

"MM. Delpech and Lallemand have recently extended the contro-stimulant use of tartar emetic to the prevention and cure of *tetanus* from *traumatic lesions*. Their results were made known by M. J. Franc, one of their pupils, in a memoir published in 1834, from which it appears that the exhibition or tartar emetic in large doses prevents the accidents which follow those lesions; and, when these accidents have already taken place, forms the most efficacious means of treating them. By this treatment, M. Lallemand has cured, in many cases, a slight and commencing *encephalitis*, the consequence of traumatic lesions. The dose of the antimonial which he employs in the twenty-four hours, is generally eight grains, associated with the syrup of poppies. Delpech, however, gives the remedy in simple aqueous solution without any addition.

"M. Trousseau reports several cases of phlebitis and puerperal peritonitis, successfully treated by tartar emetic and other antimonials, used as contro-stimulants.

"In concluding our remarks on the contro-stimulant use of tartar emetic, it is hardly necessary to add that its employment in this way is strongly contra-indicated in inflammation of the stomach and bowels. M. Fabre has reported a case of combined bronchitis and gastritis, in which the administration of twelve grains of tartar emetic was followed by bloody vomitings, convulsions, and delirium. M. Vacquie has recorded a case of acute gastro-peritonitis, made to terminate in gangrene, and M. Barbier, two cases of inflammation of the stomach, exasperated and rendered rapidly mortal, by the use of large doses of this antimonial. Too much caution, therefore, cannot be exercised in its administration in diseases in which the alimentary canal is implicated."

Our limits permit but one other extract, we shall make it from an able and elaborate article on the physiology and diseases of the anus; selecting what relates to the atony of that part.

"*Atony of the Anus.* In consequence of frequent and undue dilatation of the anus, the two sphincters sometimes cease to contract with

sufficient force, and the canal becomes permanently enlarged. The same result also happens occasionally from paralysis consequent upon concussions of the spine, and the enlargement may then continue after the spine has recovered from the effects of the injury. Among the most fertile causes of the worst forms of this affection, may be ranked the indulgence in unnatural crimes, fortunately little known in this country, but which the crowded condition of those schools of vice, our public prisons and alms-houses, are rapidly introducing amongst us.

"Slight shades of dilatation from atony of the sphincters are very common among men of sedentary habits, more particularly such as are esteemed good livers; though they are seldom made a ground of complaint, and have received much less attention than they deserve. The immediate consequences of this loss of tone are, a slight irritation of the teguments, and an increased secretion of the mucus of the canal, which sometimes produce serious inconvenience, although unattended by pain. As ulterior results, this morbid condition may determine the development of many of the more serious diseases of the part, under the action of agents which would prove harmless in a healthy condition of the anus; and these diseases may recur after a cure has been accomplished, if the atony be neglected. The complaint, in such cases, yields almost invariably to a regimen and treatment calculated to regulate the habitual action of the bowels, aided by that most powerful but much neglected remedy in irritations of this part, the local application of cold. The best mode of applying this remedy is to throw a continued stream of cold water upon the anus; and it is much to be regretted that the apparatus for what is termed the *douche ascendante* is so seldom employed in this country. Cold ablutions, however applied, are much less efficacious.

"The worst forms of the complaint, originating from the causes already enumerated, or from tumours, or former operations on the part, are attended by permanent stretching of the teguments themselves, remaining after the sphincters have in a great degree recovered their tone. Such cases yield only to the removal of the cause, to the use of astringents, or, in the most obstinate, to the excision of some of the redundant folds of the skin. (See *Prolapsus Ani.* § 5.)

"If the affection is the result of vicious habits, says Velpeau, the anus is strongly excavated, like a funnel; in other cases, it is salient, depressed, or irregular, but never infundibuliform. Involuntary stools and prolapsus ani are often occasioned by this kind of enlargement. When the causes which originally produced it are incurable, as in some cases of tumour and paralysis, the case is beyond the reach of art."

MISCELLANEOUS INTELLIGENCE.

ANALECTIC, ANALYTICAL, AND ORIGINAL.

I. Analectic.

Ad Sylvas, Nuncius.

1. ***Abstract of Observations on Motions and Sounds of the Heart.*** By Hugh Carlile, A. B. Demonstrater in the School of Anatomy in the University of Dublin.—The circumstances in the history of the heart's action which have been most the subject of controversy within late years may be enumerated as follow:—1st, the expansion and contraction of the auricles and ventricles, commonly called their "systole" and a diastole;" 2d, the beat of the heart against the side of the chest; 3d, the arterial pulse; and 4th, the sounds perceptible during the heart's motion. With a view to the explanation of these phenomena, the author has made some experiments on living animals, the results of which he was desirous of communicating to the Association.

In experiments of this kind it is desirable, as well for ensuring the means of accurate observation as for the sake of humanity, to diminish as much as possible the suffering of the animal. This can be accomplished by the use of the artificial respiratory apparatus, the animal having been suddenly deprived of sensation without shedding its blood. But the author has found that the application of this apparatus causes the heart to continue and terminate its motions in an unusual manner, and is therefore liable on some points to mislead the observer. In those cases in which the employment of artificial respiration is not expedient, there is much advantage in using very young animals for experiment. In this stage of life, as well as in animals of the inferior classes, the different organs appear to have a comparatively independent existence; and as their functions are in many instances performed with little disturbance under serious injury to the individual, they also retain their vitality long after their separation from the rest of the system. From the same causes very young animals appear to suffer less pain during experiment than those of mature age.

After discussing the methods of experimenting, the author proceeds to describe the opinions which have been held by other persons on the

subjects in question, and to compare them with the conclusions to which his experiments have led.

1st. It has been asserted by Bichat, and his celebrity has induced many to adopt the opinion, that the ventricles possess a power of active dilatation, by means of which, when their systole has terminated, they are enabled to invite into their cavities the blood from the neighboring auricles. The author, however, has ascertained by experiment, that there is no such dilating power in the ventricles, but that these muscles, when their state of contraction has ceased, become perfectly soft and flaccid, like all other muscles in their state of repose, and thus readily admit the blood from their respective auricles, which had become distended during the systole of the ventricles. The feeling of resistance which was mistaken by Bichat for a dilating power, and was supposed by him to accompany the diastole of the ventricles, the author has ascertained to be caused by the swelling of their muscular fibres during their systole.

The auricles contract but little upon their contents in man and in the higher classes of animals, the small quantity of blood which the ventricles discharge at each contraction being compensated by the frequency of their movement; while in the cold blooded animals, in which the heart acts with less frequency, the degree of expansion and contraction of both auricle and ventricle is much greater than in the former classes, and the quantity of blood sent through the heart at each movement is much larger.

2d. The impulse of the heart against the side of the chest, commonly called its beat, has been explained by different writers in various ways. Mr. Hunter supposed it to have been caused by the straightening of the curve of the aorta during the systole of the ventricles, whereby the apex of the heart was thrown forwards. Meckel refers it, in part, to the elongation of the arterial tubes during the ventricular contraction, and partly to the swollen state of the auricles at that time, by which the ventricles are pushed forward against the side of the chest. Harvey mentions an opinion held by some in his time, and which had been lately revived, namely, that the beat is caused, not by any active power in the ventricles, but by the muscular contraction of the auricles during their systole, by which the blood being sent with force into the ventricles, distends their cavities, and causes them to strike against the chest. This opinion, therefore, supposes the beat of the heart to coincide with the ventricular diastole. Various other suppositions have been put forward upon this subject by different authors.

The author's experiments show that the beat of the heart is coincident with the systole of the ventricles, and is caused by the peculiar shape which these parts acquire in their contracted and hardened state, their middle part becoming globular and prominent, and their apex being, as Hunter expressed it, "tilted" forward. During their systole the ventricles, like other muscles in a state of contraction, become swollen and hard to the touch, as was observed long since by Harvey. The greatest quantity of muscular fibre being situated about their middle part, where the "musculi papillares" are placed, this part during

the systole assumes a globular and prominent form, projecting in front, and by its protuberance behind pushing forward the body of the ventricles. The apex is "*tilted*" forward for the following reason. The author has ascertained, by unravelling the structure of hearts prepared by boiling, that the fibres which pass from the base to the apex, on the front of the ventricles, are considerably longer than those similarly placed behind. In some human hearts he has found them in the ratio of five to three; the shape of the ventricles being nearly that of an oblique cone, whose base is applied to the auricles, and whose longest side is in front. Now, it is a law of muscular action, that fibres are shortened during their contraction in proportion to their length when relaxed. For instance, if a fibre one inch long, lose by contraction one-fourth of its length, or one quarter of an inch, a fibre two inches in length will lose *one* inch by a contraction of equal intensity. We have seen that the fibres, which, by their contraction cause the apex to approach the base of the ventricles, are much longer on the front than on the back part, and, consequently the former are more shortened during their contraction than the latter. The apex, then, does not approach the base in the line of the axis of the ventricles, but is drawn more to the side of the longer fibres, that is, towards the front, thus producing the "tilting" forward.

This conclusion is strengthened by the fact, that the forward motion of the apex of the ventricles is always proportioned to the obliquity of the form of these cavities in different classes of animals. In the heart of some reptiles, the frog for example, in which the lengths of the fibres of the ventricle before and behind are nearly equal, the tilting of the apex is scarcely discernible. The obliquity is greater, as far as the author has been able to observe, in the human heart than in that of any other animal.

Mr. Carlile has ascertained, also, that the ventricles assume this form during their contraction, after they have been separated from the auricles by a ligature, and even after they have been removed from the body, and placed in a vessel of tepid water, or held upon the hand, the auricles having been previously cut off; in all which cases the peculiar motions which accompany their contraction and relaxation were observed to recur as long as their power of moving remained; proving that the heat of the heart is produced altogether by the action of the ventricles during their systole, and that in these, as in all other muscles, the peculiar forms assumed during their contraction depend upon the relation, as to length and position, of the fibres of which they are composed.

3d. The arterial pulse, which is produced by the jet of blood sent from the left ventricle into the aorta during its systole, has been stated by Bichat and many other writers to be synchronous throughout the whole arterial system. But the experimenter can ascertain in his own person that the pulse is successive at different distances from the heart. If the hand be placed over the region of the heart, and the radial artery be felt at the same time, an interval will be distinctly perceptible between the beat and the pulse; and if the anterior tibial ar-

tery be substituted for the radial, the interval will be found still greater. Repeated observations of this kind show that the intervals of time between each beat of the heart and the corresponding pulse in different parts of the body are proportioned to the distances measured along the arteries, from the heart to the respective parts; and a knowledge of this fact leads, without further anatomical inquiry, to the conclusion that the beat of the heart is coincident with the ventricular systole. For, as the intervals of time between the beat and pulse are proportioned to this distances from the heart to those parts where the pulses are felt, it follows that when the distances become evanescent the intervals of time will also vanish. Consequently, at the origin of the aorta the pulse will coincide as to time with the beat of the heart; but the pulse at the origin of the aorta is necessarily synchronous with the ventricular systole, by which the blood is driven into that artery; and therefore the beat of the heart will coincide with the ventricular systole, a conclusion which agrees with that drawn from positive experiment.

The proportion which exists in the pulse between the intervals and distances is dependent upon the elasticity of the arteries.

4th. An explanation of the *sounds* of the heart has become necessary since the employment of the stethoscope in ascertaining the state of internal parts. Laennec has well described these sounds, and properly refers the first to the rush of blood from the ventricles during their systole. But, in supposing that the second sound is produced by the auricular systole, he has fallen into an extraordinary error, as the second sound follows immediately after the first one, whereas the auricular systole precedes the ventricular. This mistake has been noticed by different writers since Laennec's time, who have rejected his explanation, and substituted others in its place.

From the observations which the author has made, he has no doubt that the second sound is caused by the obstacle which the semilunar valves present to the passage of the blood from the arteries back into the heart, at the termination of the ventricular systole.

At each contraction of the ventricles a quantity of blood is driven by them into the trunks of the arteries, which, being already full, accommodate the addition to their contents by a lateral expansion of their parts nearest to the heart. When the systole of the ventricles is at an end, the elastic force to the arteries, acting upon their contained blood, drives it towards the heart, its entrance into which is prevented by the sudden closing of the semilunar valves: and thus a shock is communicated to the front and upper part of the ventricles, and to the adjacent trunks of the arteries, which may be heard by the ear placed over the region of the heart. The relation, as to time, which the second sound has to the first, its abrupt character, and its coincidence with the end of the ventricular systole, have led the author to adopt the foregoing opinion.

Mr. Carlile then described the experiments from which the greater number of the preceding conclusions have been drawn, and having detailed the circumstances of some made upon living subjects, proceeded to relate those which follow.

1. Artificial respiration having been established in a rabbit which had been strangled, and the heart having been exposed, the following observations were made.

The finger being applied successively to the front, back, and each side of the ventricles, conveyed the sensation of hardness and impulse when the ventricles assumed the globular form, and of softness and flaccidity when they became flattened and expanded. The end of a probe being laid on the front surface of the ventricles, was raised nearly a quarter of an inch during the former of these states, and sank, causing a slight depression on the surface, in the latter. The probe was more elevated when placed on the middle point of the surface, or on the front of the apex, than when placed elsewhere.

The right wing being held aside, so as to admit of the right auricle being seen, this was observed to swell during the continuance of the ventricles in their hardened state, and to diminish its size from the instant in which their flaccidity commenced, its degree of contraction being, however, inconsiderable. The contraction of the appendix was preceded by that of the rest of the auricle, and followed by the instantaneous movement and hardening of the ventricles. The contraction of the different parts of the auricle was successive, commencing as the venæ cavæ, and terminating at the appendix, of which the last contraction was much more sudden and distinguishable than that of any other part.

The heart in this subject continued to beat for an hour, when the motions in all its part ceased, and nearly at the same time; both auricles and both ventricles remaining distended, soft, and full of blood. The heart, separated from the body, was thrown into tepid water, where it remained, soft, and without motion, and had lost the power of contracting itself.

2. A rabbit having been strangled, the heart was exposed while still beating. In about ten minutes the left ventricle ceased to move, and had contracted itself firmly. In a minute or two afterwards all motion was at an end in the left auricle, which was also contracted. The right ventricle continued its movements for forty-five minutes, and during its contraction the apex of the heart was drawn a little to the right side. The right auricle continued to possess motion for an hour and three-quarters; and for the last twenty minutes its contraction proceeded slowly, and with a motion apparently vermicular, over its surface; always commencing at the part contiguous to the venæ cavæ, and ending at the appendix. The right auricle and ventricle contained each some blood when their motions ceased; but the heart having been thrown into tepid water, they gradually expelled their contents, assuming, as those of the left side had done, a firm and contracted state.

The difference of the states in which the hearts were found, after their motions had ceased, in the last two experiments, is remarkable, and appears to admit of the following explanation. In the last experiment, in which no means were employed to continue respiration, the left side of the heart soon ceased to move; because a continuance of the functions of the lungs, as proved by the experiments of Bichat, is

necessary to the maintaining of its actions. The firmness of its contraction shows, that although its ordinary motions had ceased, it still retained a considerable share of organic life, as it is known that muscles, whose vitality is quite extinct, have no power of contraction. In the experiment in which respiration was artificially maintained, the left side of the heart continued to beat for an hour, the sustained function of the lungs affording to it a motive for prolonged action; but having been deprived of the influence which the central parts of the nervous system extend to organs in vital connexion with them, its powers of life were exhausted by the long continuance of its motions, and when these ceased, it was quite dead, and incapable of a vital contraction. The right side of the heart in the last experiment seems to have participated in the exhausted state of the left side, because its motions had been performed with much more energy during their continuance than would have been the case had not respiration been artificially maintained.—*Report of the Third Meeting of the British Association for the Advancement of Science.—Amer. Jour. Med. Sci.*

2. *Results of a Series of Experiments in Revaccination, performed in the Royal Army of Wirtemberg.* By Dr. Heim.—The question of the utility of revaccination is now attracting especial attention in Europe, and the materials for settling it are accumulating. In our number for August last, p. 474, et. seq. we presented the result of the revaccination of the Prussian army, and also of the experiments of Dr. Lurott of the Canton Bischwiller, and we shall now offer a condensed summary of the principal statistical and pathological facts collected by Dr. Heim, of Ludwigsburg, Physician to the late Queen of Wirtemberg, who has been officially nominated by the government of that country to superintend the revaccination of the Wirtemberg army. We derive this summary from a paper read to the College of Physicians of London by Dr. G. Gregory, and published in the *London Medical Gazette* of July 12th, 1834.

Prior to the year 1829, it was the custom of the Wirtemberg service to vaccinate all recruits who had neither undergone small-pox nor been vaccinated in early life. A variolous epidemic, which showed itself at Stutgard in 1829, occasioned the issue of a ministerial order, dated March 26, 1829, directing that henceforward all recruits should be subjected to vaccination who could not show satisfactory *cicatrices* either of small-pox or of the vaccine. In the autumn of '32, small-pox broke out in the garrison town of Ulm; and, again, a third epidemic occurred at Ludwigsburg in 1833. These repeated visitations of small-pox in the Wirtemberg territories occasioned the issue of another order, dated February 7th, 1833, directing indiscriminate revaccination of all recruits, without reference to vaccine cicatrices.—Directions were further given for revaccinating every individual of the two garrisons of Ulm and Ludwigsburg, of whatever age or standing in the army—those being the towns in which the variolous epidemic had displayed itself in the greatest force.

The general results of these very extended trials are given by Dr. Heim in two tables.

Table No. I. gives a general survey of the success attending the revaccination of the entire garrison of Ludwigsburg during the summer of 1833. The garrison consisted of a regiment of artillery, a regiment of infantry, and two regiments of cavalry: total, 1683. Of these there were revaccinated, with the best success, 577, (one-third of the whole)—with modified or partial success, 366—without success, 740. Nearly the whole of the subjects of these experiments were, as might be expected, adults, between twenty and thirty years of age, and of course the greater portion of them had been vaccinated in infancy. 144 only were above or under the ages now specified.

Of the 577 men revaccinated as above stated, with the best success, 293, (more than one half,) had perfect cicatrices. On the other hand, out of the 740 revaccinated *without* effect, 222 had imperfect scars, and 136 retained no mark whatever of their first but effective vaccination.

Table No. II. presents a general summary of the results of the revaccination of the *Recruits* of the Royal Army of Wirtemberg, from 1829 to 1833, of which the following appear to be the most important:—

Total numbers upon whom the operation of revaccination was performed - - - -	4802
Of them were revaccinated—	
With normal or perfect success - - -	1208
With modified or imperfect success - -	956
With success, but in a degree not accurately specified	914
Without success - - - -	1724
Total - - -	4802

If we deduct from the total number revaccinated, 4802, those in whom the success, though perhaps in the plcurality normal, is yet not pointed out with precision, (914,) the proportion of those revaccinated with good success is 30 per cent.—of those with modified or partial success, 24 per cent.—of those without result, 46 per cent.

The same table presents us with a series of data from which the value of the cicatrix, as a test of constitutional safety, may be inferred.

Of 4111 persons revaccinated, 2193 had normal cicatrices, In 2390 cases the operation produced a certain degree of effect. One-half passed through the second vaccination in a normal manner; the other half imperfectly, and in a modified form. Of the former, or regular revaccinations, (1208 in number,) 664 had perfect cicatrices; that is to say, one-half of these upon whom the process of revaccination produced the most *decided* effects, had scars, from which an *opposite* result might have been anticipated.

The converse of the proposition leads to a like conclusion. As thus:—Of 1722 persons on whom the operation of revaccination produced *no* effect, and in *all* of whom, therefore, good cicatrices might have been expected, 500 had *imperfect* scars, and 259 bore no scars whatever.

Again: of 956 persons in whom, upon being revaccinated, the cow-pock appeared, although in a modified form, 572 bore upon their arms *good* cicatrices, 278 had *imperfect* cicatrices, and 104 had *no* cicatrices whatever.

From these and various other facts Dr. Heim concludes, that the inspection of the scars left by the primary vaccination is devoid of all practical interest: in other words, that no satisfactory conclusion, as to the resusceptibility of the disease or otherwise, can be derived from such a source.

Such are the principal results deducible from the tabular statements transmitted by Dr. Heim. The learned author appends to these certain pathological observations made by himself while superintending, in his official capacity, the revaccination of the garrison of Ludwigsburg, in 1833.

The first, and certainly the most interesting circumstance adverted to, is the effect which the extended system of revaccination pursued by the authorities of Wirtemberg had in checking the variolous epidemic. His words are:—"This powerful revaccination of the men comprising the garrisons, (of Stutgard, Ulm, and Ludwigsburg,) without reference to the quality of the cicatrices, destroyed the spreading of small-pox among the soldiers." In another part of the MS. he uses these expressions:—"In this manner the revaccination passed in a few weeks through all the regiments of the garrison, and the spreading of the epidemic small-pox among the military was set real bounds to by it."

The next circumstance adverted to by Dr. Heim is entirely new to the practitioners of this country, namely, the difference of result according as the propagating lymph was derived from the arm of a child or that of an adult. It has long been known that children are vaccinated most successfully from others of their own age. Dr. Heim's experiments lead him to believe, that *adults* are vaccinated most effectually from the vesicles *of adults.*

His words are these:—

"In the first regiment of cavalry many fruitless, or at least unsatisfactory, trials were made with fresh and good matter taken from the arms of children. At length I made it prosper upon a soldier, in whom fifteen exquisitely perfect pustules were produced. By revaccinating with this *adult lymph*, I succeeded with those in whom vaccination from the arm of the child had *failed.* Even in individuals of a higher class of society, with all favorable qualities for good success, the trial of vaccination from the child's arm frequently failed, while I soon succeeded in it from the arms of adults."

That this was owing to some peculiarity in the law of *adult vaccination*, and was not attributable to any fault in the vaccine matter of

the infant, was proved by its *constant* success when infants alone were the subjects of trial.

Further on, Dr. Heim thus expresses himself:—

"Of the superior effect of vaccinating from *adults* to *adults*, I have had experience for the last six years, but the opportunity which has been recently offered of trying it on a large scale, has been rewarded *with the most splendid success*....My colleagues, (he adds,) of this place, (Ludwigsburg,) have also made the same observations.

In another part of the memoir, while adverting to the employment of adult lymph, to which he attributes the superior efficacy of the revaccinations of 1833, Dr. Heim notices the prejudices that so generally exist in Germany as well as in England, against employing the vaccine matter of adults in propagating the disorder. "This false opinion," he states, "is the more striking as it is neither defended by obvious reasons, nor confirmed by experience. On the contrary, there are cases known to us where the modified vaccine of revaccinated persons produced the *genuine* vaccine in children not previously vaccinated: nay more, in some instances it took effect upon those I had vaccinated more than once, but without success, using recent lymph from the arms of children."

Having satisfied himself of the truth of his position, that important practical differences do exist between adult and infantile vaccination, Dr. Heim proceeds to reason upon it.

"We might expect," he says, "à *priori*, that the vaccine lymph of adults should be more *energetic* than that of children, for the same reason that we fiud measles, scarlet fever, and even small-pox itself, to be more *dangerous* in adults than in children." He next throws out the very ingenious hint, that it was to the employment of vaccine matter from the arms of *adults*, that Jenner was indebted for the splendid success which attended all his first trials with the vaccine. Dr. Heim evidently considers this as the chief feature of his memoir, and he invites the attention of physicians to it in an especial manner, as to a subject of great scientific and practical interest.

Dr. Heim supports the doctrine of a gradual return of the vaccine susceptibility in persons even the most effectually vaccinated in early life, but his further speculations on this subject are confused and scarcely intelligible.

Dr. Heim has made no experiments with the variolous contagion, so as to determine positively, whether the susceptibility of small-pox and the resusceptibility of cow-pock acknowledge the same law.—This important branch of the subject requiring, on the part of the experimenter, such extreme caution, must be left to be determined by future inquirers. Dr. Heim indulges the notion, that the resusceptibility of small-pox and the vaccine do *not* coincide, but he throws out the suggestion without offering any adequate proofs in its support.

Dr. Heim details a curious case in which small-pox and measles occurred simultaneously, and he seems to hint that there is some sort of

analogy in the relations of cow-pock to small-pox, and of small-pox to measles.—*Amer. Jour. Med. Sci.*

3. *On the Use of Colchicum Autumnale in Leucorrhœa.*—George Ritton, Esq. in a communication in the *London Lancet* of 2d of August last, states that he has treated a vast number of cases of leucorrhœa with the powdered root of colchicum with almost invariable success. He commences its use with grains of the powdered bulb made into a pill with hard soap, to be given three times daily, and the dose increased to five grains. During the period the patient is taking the colchicum, it will be absolutely necessary, Mr. R. says, for her to abstain from *every* beverage which contains alcohol. Five grains of powdered bulb of colchicum, exhibited three times daily, will very generally cure leucorrhœa in ten days. Some cases require its continuance for three weeks, and others for a month. The discharge sometimes returns after the discontinuance of the medicine, but after further perseverence in its use Mr. R. has finally found it almost always successful.—*Ib.*

4. *Treatment of Sore Nipples by Nitrate of Silver.*—Chaps, abrasions, and inflammation of the nipples in nursing women, are productive of extreme suffering. The following method of treatment is asserted by Dr. A. J. Hannay, in a communication in the *London Medicnl Gazette* of 9th of August last, to never fail to afford relief, and ultimately effect a cure. "Having gently, but carefully, dried the nipple, touch it freely with a sharp pencil of nitrate of silver. Be sure to insinuate the pencil into the chaps or chinks; then wash the nipple with a little warm milk and water. In most instances, the pain, though smart at first, soon subsides, and a little simple ointment, or one made with the flowers of zinc, is all that is requisite to heal the sore. I occasionally wash the nipple with the saturated solution of borax, before and after the suckling the infant. Some suffer a great deal of pain from the application of the caustic, this must not be heeded. A draught, containing an opiate, such as sol. mur. morph. thirty drops, soon brings relief, and the part is presently easier. Some require to be touched more than once,—nay, several times; but each succeeding time it is less painful. I have heard of a solution of nitrate of silver being tried: I can positively assert that it is inferior to the solid caustic, both in relieving and healing these painful affections."—*Ib.*

5. *On some of the Effects of the Secale Cornutum.*—The third No. of the fortieth volume of *Rust's Magazin,* contains an interesting memoir by Dr. Muller on the above subject. The author does not entertain any fears of the accidents, said by some practitioners to result from the secale cornutum given to hasten delivery, as he has never seen a case in which it has been hurtful to either mother or child, when the delivery was at full time. Dr. M. has repeatedly used the article to produce abortion in cases of hæmorrhage occurring at the second, third, fourth, or even at a more advanced stage of utero-gesta-

tion, and in every case the desired effect was promptly produced, and without hæmorrhage. In most of the cases, other abortives had proved inefficacious, and the least delay would have been fatal. Dr. M. has also resorted to the ergot to promote the expulsion of the placenta, and also to arrest uterine hæmorrhages after both natural and artificial delivery, after abortion, those which result from external violence, and in menorrhagia; also in all kinds of pulmonary hæmorrhages; and finally, in nasal and intestinal hæmorrhages, and he thinks that no other means is more useful. It is, especially, however, in uterine hæmorrhages following delivery or abortion, in menorrhagia and pulmonary hæmorrhages that it is most efficacious. Professor Bazzoni has published eight cases of leucorrhœa cured by this remedy; and Dr. M. says that he has long used it in the same disease with constant success, and also in blenorrhagia in men, and particularly gleet, which has resisted every other treatment. Dr. M. considers the best mode of administration to be in powder freshly prepared, and mixed with sugar. He gives it in doses of from five to ten grains every two hours. —*Amer. Jour. Med. Sci.*

6. *Sulphuric Acid as a Prophylactic against Saturnine Colic.*— Some time ago M. Gendrin proposed sulphuric acid lemonade as a prophylactic against, as well as remedy for saturnine colic, (see this journal for May, 1832, p. 241.) M. G. has recently communicated to the Academy of Sciences, some additional interesting information on this subject. He states, that M. Rouard, director of a manufactory of white lead, caused all his workmen to take the sulphuric acid lemonade, and from that moment lead colic ceased to occur among the men in the establishment. During two months, only four workmen were slightly affected with lead colic, and this exception is explained by circumstances peculiar to these workmen. But, he adds, that at the same time that these results have confirmed the utility of the measure as regards colic, six of the workmen were attacked with symptoms hitherto regarded as the effects of lead colic, as cramps, muscular debility, and nervous epileptic symptoms. These symptoms, M. G. ascribes to a layer of oxide and carbonate of lead, combined with the epidermis. This observation he considers accounting for many symptoms hitherto difficult of explanation, and points out the origin of the relapses and symptoms which so often supervene after the cure of colics in workmen habitually exposed to the powerful action of the causes of the disease. He further adds, that whether the sulphuric acid be resorted to as a prophylactic or remedy, it must be employed externally, as well as internally. Conformable to this indication, the workmen in the establishment of M. Rouard, at the same time that they take the sulphuric acid lemonade as drink, use lotions of the same to the surface of their bodies.—*Ib.*

7. *On Creosote.* By M. Reichenbach of Blansko.—M. Reichenbach, to whose labours we owe the discovery of Paraffine, of Eupione, and Picamore, has recently found, in the products of the destructive distilla-

tion of wood, a new substance which he calls Creosote, from the Greek words *kreas*, flesh, genitive by contraction *kreos*, and *sozo*, I save.

This substance is highly interesting, not only on account of its chemical properties, but from its useful application to therapeutics, domestic economy, and the preservation of provisions for long voyages. Two processes are given for its preparation. By the one, the creosote is obtained from pyroligneous acid; by the other, from the tarry matter which distils over along with that acid. These processes do not differ much; both are tedious, but the latter method seems to be the easier. The tarry matter yields an oil by distillation, to which, after being rectified and heated, carbonate of potash is added, to neutralize the acetic acid associated with it. The acetate of potash separates, and the oil is again distilled, care being taken to reject the first products, and not to carry the distillation to dryness. The oil that comes over is then treated with a solution of caustic potash of sp. gr, 1.12, great heat is produced, and a portion of eupione, &c. formed, which floats on the surface. These are rejected, and the alkaline solution is slowly made to boil in an open vessel. A chemical action takes place,—it absorbs oxygen from the air, and assumes a brown colour. After it is cooled in the open air, diluted sulphuric acid is added until the oil is set free. It is again distilled with water, to which a little caustic potash should be added. The oil is then separated from the water in the receiver, and again treated with a solution of potash, sp. gr. 1.12, boiled as before—cooled—treated with rather an excess of sulphuric acid—poured off from the sulphate of potash—well washed with water to carry off the excess of acid,—again distilled with water, to which a little phosphoric acid is added, to saturate the ammonia associated with the oil. Lastly, it is dissolved in caustic potash, and if the preceeding operations have been carefully attended to, the creosote and the potash unite, and the mixture, when heated, leaves no residuum of eupione, nor becomes brown by exposure to the air. The creosote may then be separated from the potash by distillation, and, although not quite pure, is sufficiently so for medical purposes. The foregoing is a very imperfect outline of the process, which will be seen to be sufficienly tedious. The processes will be found minutely described in the Annals of Schweigger-Seidal, Vols. VI. and VII.

Creosote is an oily, colourless, transparent liquid, posssessing great refrangibility. Its odour is penetrating, disagreeable, and similar to that of smoked beef. It is of the consistence of oil of almonds, and has a sp. gr. of about 1.037, at 20 deg. Cels. (68 deg. Fahr.) It boils at 203 deg. Cels. (397.4 deg. Fahr.) and is not congealed at a temperature of —27 deg. Cels. (—16.6 deg. Fahr.) It burns with a smoky flame. It is a non-conductor of electricity. At 20 deg. Cels. (68 deg. Fahr.) it forms with water two different combinations, the one containing one-fourth part of creosote in 100 parts of water, the other, ten parts of water in 100 creosote.

This substance forms numerous interesting compounds, with acids and alkalies. Concentrated, it dissolves the deutoxide of copper, and assumes a chocolate-brown colour. At a boiling heat it reduces the

deutoxide of mercury, and is then transformed into a resin, which has no longer the properties of creosote. Nitric acid acts on it strongly, and acid vapours are disengaged. It combines with chlorine, bromine, iodine, phosphorus, and sulphur. Potassium thrown into it disappears, gas is disengaged, and potass remains combined with thickened creosote. From this combination the creosote separates by distillation. Concentrated sulphuric acid added in small quantities gives to creosote a reddish colour; but when the quantity of acid is increased, the creosote becomes black. Of all the organic acids, the acetic seems to have the greatest affinity for creosote, uniting with it in every proportion.

This substance, when cold, forms two combinations with potash.—The one is an anhydrous liquid, of an oily consistence; the other is a hydrate, and crystallizes in white scales. All the acids, not excepting carbonic acid, separate the creosote from these combinations.—With soda, it forms combinations similar to those with potash. It has a great affinity for lime, and the hydrate of barytes; with these bodies it forms compounds of a dirty white colour, soluble in water, but which, when dried, assume the appearance of a rose-coloured powder.

Creosote, in a warm and cold state dissolves a great number of salts. Some are reduced, but the greater part are separated in the form of crystals by cooling, such as the acetates of potash, soda, ammonia, lead and zinc, and the hydrochlorates of lime and tin. It reduces the acetate and nitrate of silver.

Alcohol, ether, acetic ether, carburet of sulphur, eupione, and oil of petroleum, combine with creosote in every proportion. Paraffine, though issuing from the same source with creosote, has little tendency to combine with it. Indeed, the combination cannot be effected, unless eupione be present, and in a direct ratio to the quantity of eupione. Creosote with difficulty dissolves caoutchouc, and only by the assistance of boiling, differing very much in this respect from eupione, which readily dissolves caoutchouc.

If to a solution of albumen, in a large quantity of water, a single drop of creosote be added, the albumen is immediately coagulated. When fresh meat is put into a solution of creosote, allowed to remain for half an hour, or an hour, then withdrawn, and afterwards dried, it may be exposed to the heat of the sun without putrefying, and in the space of eight days it becomes hard, the colour changes to a reddish-brown, and the flavour is that of good smoked beef. Fish may likewise be preserved by it. It is pretty evident that creosote is the antiputrescent principle of pyroligneous acid and of wood smoke.

M. Richenbach has ascertained that creosote does not act on pure fibrin, which by itself is said not to be susceptible of putrefaction.—Its action upon the animal economy is deleterious. Placed upon the tongue it occasions violent pain, and when poured, in a concentrated state, upon the skin, it destroys the epidermis. Insects and fish thrown into it immediately die. Plants also perish when watered with it. M. Reichenbach has made experiments with this substance concentrated and diluted, and his success has surpassed his expectations. It

has, he alleges, effected a speedy cure in cases of caries, of cancer, and of carcinomatous ulcers.

M. Schweigger-Seidal has made a comparative examination of creosote, and the aqua Binelli, from which he has come to the conclusion, that the fundamental base of this hemostatic liquor is creosote, of which it is only an excessively weak solution.—*Edin. Med. and Surg. Jour. Jan.* 1834.—*Ib.*

8. *New Method of Preparing Creosote.* By M. CALDERINI, apothecary at Milan.—The essential oil obtained by the destructive distillation of wood, is to be put into an iron vessel, and exposed to a gentle heat. The vessel is then to be taken from the fire, and slaked and sifted lime to be poured into it little by little, and with continual agitation, until the effervessence ceases, and the mixture becomes a hard mass, which is to be allowed to cool, and then powdered. A cast iron retort is to be two-thirds filled with this powder, and placed in a reverberatory furnace. A receiver is to be fitted to the retort at the moment when the white vapours which first come over become yellowish. The distilled liquor is to be placed in a filter of paper moistened with water, to permit only the aqueous part to pass, and the oil left is to be washed with pure water, which is to be allowed to filter. The oil thus washed is to be placed in an iron vessel, and aqua petassæ of sp. gr. 1.125 is to be added in the proportion of three parts to two of the oil. The mixture is then to be boiled for a moment with a gentle heat, after which it is to be taken from the fire, allowed to cool, filtered and mixed with dilute sulphuric acid, till it becomes slightly acid.—The mixture is then to be left at rest, and an oily matter will be found floating on the top, which is impure creosote. This is to be collected, washed on a filter, put into a glass retort, placed in a sand-bath, and distilled. The first portion is to be laid aside, and what comes over afterwards of a pale yellow colour when heat is added, is creosote.—The distillation is to be stopped when the drops become of a deeper colour. If the distilled creosote be not sufficiently pure, it is to be dissolved in the *aqua potassæ*, and treated as before, always rejecting the first and last parts that come over on distillation, and this process is to be repeated until it becomes perfectly pure. When the creosote is obtained pure it is to be kept in well-stopped bottles. It is known to be pure when it is colourless, transparent, of specific gravity 1.037, and possessed of great refrangibility. If a drop be placed in contact with the white of an egg, it is suddenly coagulated. If it be dissolved in a small quantity of *aqua potassæ*, the solution, when heated in contact with the air, does not assume a brown colour, as happens when the creosote is impure, but becomes slightly reddish.—*Ibid. Oct.* 1834.—*Amer. Jour. Med. Sci.*

9. *Medicinal Properties of the Creosote.*—From all accounts the creosote seems to be a potent, and consequently, under a judicious use, a useful remedy. A drop put upon the tongue causes very severe pain, and blisters the part; even the epidermis is usually detached from a portion of the skin, moistened with the pure creosote.

The solution of it in water is the preparation which Reichenbach has chiefly employed;—its strength may be made to vary according to the strength of the irritation required; but in most cases a solution of one part of the creosote in fifty of warm water will be found most convenient. He has used it successfully in scalds and in burns, whether the epidermis has been detached or not; in numerous cases of chronic herpes and impetigo, in itch, &c. When these cutaneous diseases are very obstinate, and resist the effects of the creosote solution, he is in the habit of applying the substance either directly and in its pure state, or mixed with lard, so as to form an ointment;—under the use of this ointment, the pustules or vesicles very quickly dry and fall off. The period usually required for the cure varies from one to three weeks; and as a matter of course, this must depend on the duration of the disease, and on the constitution of the patient. Several cases of troublesome, and sometimes apparently malignant ulceration are reported as having been cured by the creosote. Scrofulous ulcers are benefited by it in an especial degree; and when there are any sinuses or fistulæ, no injection will be found so useful as water impregnated with the creosote. If the ulcers should be obstinate, it may be well to touch the edges of them with the pure creosote; but in most cases the application of pledgets of linen wet with the solution will be found sufficient. Tooth-ache may be often cured instantaneously by introducing a drop of it into the cavity of the decayed tooth. Even the mere gargling with the solution in water, will not unfrequently relieve the pain. The efficacy of the use of the creosote internally we should deem much more problematical, and especially in such a disease as hæmoptysis, for which it has been recommended; the dose given was four drops rubbed up with lump sugar, (it is not stated whether the four drops are to be given in one or in divided doses,) and this was repeated for six or seven days.—*Bulletin Therapeut.—Med. Chir. Rev.—Bost. Med. Sur. Journ.*

10. *Preservation of Leeches.*—M. Bertrand recommends that leeches after they become detached from a part should be gently passed between the thumb and fingers (or as it is vulgarly called, stripped) so as to make them disgorge most of the blood which they have sucked, and then be put into water moderately sweetened.

In this method leeches, we are told by M. B. may not only be kept for many years, but will retain their activity, and be fit for reapplying every third or fourth day.

Dr. Scheel has more recently recommended the following treatment as still more effectual.

The leeches should first be put into a warmish plate, and be well besprinkled with carbonate of soda; when they have disgorged most of their blood, they should be washed several times with tepid water, then put again upon a plate and some sugar sprinkled upon them; and lastly, be washed with cold water and put into a large vessel full of it, gently sweetened.

The sugared water must be changed once a day, or oftener, if it becomes discoloured. Those leeches which die or even become wrinkled and faded, should always be cast away.

Dr. S. has succeeded in preserving leeches thus for a great length of time, in good health, and in a condition ready for use every six or seven days.

When there is a very great dearth of leeches, the following expedient may be had recourse to. With very sharp scissors we may cut them right across, somewhat nearer the tail than the head, and then apply them as usual. As the animal sucks, the blood trickles from the divided end. As a matter of course, the attendants must be on their guard to prevent an excessive discharge by detaching them at a proper time. They are then to be gently squeezed, and put into fresh water. If the divided extremity should become agglutinated together and closed, we must employ a rather firmer pressure from the mouth downwards, so as to cause the blood to force an exit. Leeches which have been mutilated in the manner above mentioned, have been used several times every day for many weeks.—*Med. Chir. Rev. and Algemeine Medic. Zeitung.—Ib.*

11. *Action of rarified or condensed Air on the surface of the Body.* —M. Junod has read a memoir to the Institute of France on the effects of the condensation and rarefaction of the air on the whole body or on individual members. The apparatus he uses is a spherical brass receiver, three metres, three decimetres in diameter, the sides of which are maintained within by two iron rings supporting a bench on which the subject of the experiment is seated. Light is let into the apparatus by two glass plates in the sides. The upper part has an opening which may be hermetically closed by means of a spherical plug, or spherical leather cup. This cover has three appendages, intended to contain a thermometer, a barometer, or manometer, and the third a cock for the renewal of the air. The condensation and rarefaction of the air is effected by a pump communicating with the interior of the sphere by a tube.

If the atmospheric pressure is augmented by one half, the phenomena observed are:—

1st. Sensation of pressure on the tympanum which is driven inwards: this gradually disappears as the equilibrium is re-established.

2nd. Easier play of the respiration, deep and less frequent inspiration: in a quarter of an hour agreeable warmth of the chest, as if the pulmonary areolæ, hitherto incapable of respiration, dilated to receive the air.

3rd. Pulse somewhat frequent, full, and not easily compressed: the superficial veins flaccid and even completely obliterated, so that the blood seems to return to the heart by the deep seated veins.

4th. Functions of the brain more active, the imagination vivid, &c.; in some a sensation of drunkenness.

5th. This increase of inervation affects the muscular system, the movements of which are easier and more precise.

6th. Digestive functions more active: no thirst.

7th. Salivary, venal and grandular secretion in general more copious.

When the atmospheric pressure is diminished by one quarter, the inverse of the above are observed; that is, distention of the tympanum, producing a sensation resembling pressure, which is also dissipated by the renewal of the equilibrium; impeded respiration, short and frequent inspirations, often dyspnœa, pulse full, compressible, frequent; turgescence of the superficial vessels of the eyelids and the lips; frequently hæmorrhage with tendency to syncope, disagreeable heat of the skin, the functions of which are increased in activity; enfeebled inervation and muscular power, diminution of the grandular secretion.

Pressure on one member increased by one half is effected by a peculiar instrument and produces these effects. The skin becomes pale, the superficial veins become flaccid, the limb is diminished in volume, the circulation is suspended over a varied space. After the operation the limb is sensibly lighter, the movements easier and more precise. Other phenomena occur according to the limb operated upon. Thus, if one of the legs be acted on, vertigo, tinnitus of the ears, sparks of the eyes, difficult respiration, &c., supervene.

Pressure diminished by one-ninth on one or more limbs gives these symptoms. The skin is distended and colored, the limb increased in volume in a very few minutes, the temperature of the surface reaches that of the deep-seated parts; copious transpiration forming a vapor which condenses on the sides of the apparatus. After the operation a slight numbness of the limb is felt.

When pressure is diminished on one or several limbs the following general phenomena are seen. The head is light, the face pale, the pulsation of the facial branch of the frontal artery becomes slower, thready, and is sometimes lost: there is then tendency to syncope. The respiration is easier, the digestive functions lose their activity; nausea sometimes comes on; towards the end of the operation the traspiration, which had been confined to those parts within the instrument, becomes general.—*Lond. Med. and Surg. Journ. Nov.* 1834.—*Archives of Med. and Surg. Sci.*

12. *Re-union of the external Ear after it had been completely severed.* By D. Mariani.—This was the case of a man, who, in a house of bad repute, had his ear severed in an affray. He carried it away with him, rather to conceal his accident than on account of pain. Dr. Mariani, to whom he applied, resolved to endeavor to obtain the reunion of the separated portion. With this object, having first washed it in diluted alcohol, and clipped away some shreds, he re-applied it, and by means of four sutures, and a piece of gum elastic fixed in the meatus of the ear, secured it in its natural situation. The adjustment was still further secured, by means of adhesive strips and a dandage. He had no hope of obtaining union between the cartilaginous structures, but thought that the soft parts might unite.

On the next day he removed the dressings, to see that no displacement had taken place, when he discovered with pleasure, the existence of a red suffusion along the edge of the wound. The individual was affected with fever, thirst, and pain of the head. On the eighth day these symptoms had subsided, and the fragment of the ear had resumed its natural temperature. The extremities of the incision were the first to unite, and that connected with the lobe first of all. The other parts assumed a sloughy condition, and did not unite until the cartilage became covered with granulations. The cure was completed in about a month, and all that remained was a linear cicatrix which was almost imperceptible.—*Filiatre Sebezio di Napoli. Maggio.—Archives Med. and Surg. Sci.*

13. *Identity of Gonorrhœa and Syphilis.* By Professor Hufeland.—"Gonorrhœa arising from infection is always syphilitic, but is modified, and rendered less infectious by the secretion poured out by the mucous membrane of the urethra." This proposition which was advanced by the author thirty years ago, he thinks has been confirmed by long experience.

The following are the arguments by which it is corroborated:—

1. *The same cause.*—Two individuals may be infected by one person,—the one may have gonorrhœa,—the other a syphilitic chancre.

2. *The same effects.*—A person affected with gonorrhœa may communicate syphilis to another, or infect himself with that disease. Gonorrhœa matter introduced into the eye may give rise to a venereal ophthalmia; or a gonorrhœa too suddenly suppressed may be followed by bubo, chancre, condylomata, &c. and daily experience proves, that fluor albus of the female, which supplies the place of gonorrhœa, is capable of occasioning syphilis.

3. *The same treatment.*—Although the professor acknowledges that a majority of cases of gonorrhœa are cured either by the powers of nature, or antiphlogistic treatment; he affirms, that when this is not the case, and pains takes place in the urethra, with inflammation in the throat, and other consecutive symptoms, calomel is always the most efficient remedy.

The difference between the virus of the two affections is, that, of gonorrhœa is incorporated as it were with the mucous secretion, and acquires thereby a milder character, so that it may lose its infectious quality both as regards a second person and the individual himself. It is besides sometimes thrown off with the mucous secretions. The virus of a chancre, on the contrary, is more active and corrosive, for the same reason that corrosive sublimate, or any other poison, introduced into the system in its isolated state, is more energetic than when enveloped in mucus.—*Journ. for Praktisch Heilkunde*, 1834.—*Gaz. Medicale.—Archives Med. and Surg. Sci.*

14. *Treatment of Pulmonary Consumption by Inhalation.* By Sir Charles Scudamore.—I regret that a great deal of scepticism still appears to prevail as to the merits of inhalation, and especially as re-

gards phthisis pulmonalis, for, I believe, its utility is not questioned in chronic bronchitis, and in certain forms of asthma.

Some are disposed to throw ridicule, and a few even calumny, on any professed attempt to cure tubercular consumption; but such adversaries do not deserve one moment's consideration. We owe it equally to science and to humanity, to make unceasing exertion to lessen, to the utmost of our power, the influence of this destructive and fatal scourge.

A few call in question the propriety of employing any active agent to be administered by inhalation, alledging that the danger of producing injurious irritation to the air-passages and the lungs is more certain than the chance of removing the tubercular disease. The fact, however, is, that in no form of pulmonary complaint does inhalation relieve with so much promptitude and certainty, as in chronic irritation of the bronchial mucous membrane; and with respect to the tubercular irritation, I am willing to rest the whole proof of my recommendation upon actual experience, and the large share of success which I have obtained.

It unfortunately happens that a great proportion of cases of phthisis pulmonalis have acquired so much inveteracy as to be incurable, when they are first presented to the physician's care. Too probably, little or no attention has been paid to the first inroads of the disease; it makes progress with sure but insidious march; and when, at last, an anxious appeal is made for medical exertion, the lungs may have undergone such extensive disorganization as to allow of no other possible relief than some mitigation of the symptoms.

Failure of success on such occasions ought not to impair the credit of the mode of treatment which I am advocating; but I am too well aware that this serious disadvantage to the *good character* of inhalation is always more or less incurred when the case ends fatally, notwithstanding that only slight, if any, hopes of success might have been held out to the friends of the patient; for with regard to the patient himself, we must sustain his mind by kind encouragement. The despondency of the invalid would greatly diminish our power of affording relief.

The most frequent cause of regret which I have to experience, is the delay of the patient, or of the friends of the patient, to make a timely application for the material benefits to be afforded by inhalation. There is, undoubtedly, a satisfaction in mitigating sufferings, but yet the task is a melancholy one of watching the progress of a disease which has become incurable.

For the better comprehension of my statements in the following cases, I take the liberty of referring the reader to the second edition of my work, in which I have fully detailed my principles and method of treatment.

Case I.—J. A., æt. 47, a superintendent of a gas district, tall and well-proportioned; of delicate constitution. His father and mother, and uncle, died from consumption. He consulted me in January, 1834. He was very thin, and stated that "he had lost almost all

his flesh and strength, and feared he was past help." He had been ill with cough and shortness of breath since the beginning of December, having caught cold from continued exposure to a N. E. wind. I found his pulse from 96 to 106, and feeble; the respiration was distressingly hurried by slight exertion; the animal heat was 101 degrees. By auscultation, great obstruction to the breathing was shown, and the sound on percussion was dull, these indications being most remarkable on the right side. The sputum was greenish in appearance, not copious, and examined by the optical experiment, did not present the prismatic colours; the tongue was morbidly red; the appetite impaired; the bowels prone to diarrhœa. He had sometimes two hectic paroxysms in the day, and always one; night perspiration was more or less abundant, and he never obtained comfortable sleep.

I directed the inhalation of a solution of iodine, with the addition of a saturated tincture of conium (for the formula see my second edition,) three times a day; the internal use of sarsaparilla and alkali twice in the day, and at night the acetate of morphia, with diluted sulphuric acid and syrup of tolu. The chest was washed night and morning with the lotion of purified pyroligneous acid, eau de Cologne, and water, used just tepid, followed by the use of the flesh-brush. The diet was nourishing and supporting.

The means of treatment agreed; but as I was convinced that the lungs were obstructed by tubercles which would soften, I viewed this as a case which, in the most favorable event that could happen, would become much aggravated before any convalescence could take place. In other words, he would get worse before he could get better.

From taking cold he lost his smell and taste, and suffered from a subacute attack of pleurisy, which was removed by blistering. He described that he felt very sensible relief from inhaling, and, together with the good effects on his chest, he was sensible of improvement of appetite from it. The intestinal canal had for some time been very irritable and often painful. He received benefit from a mixture or infusion of catechu with mucilage, tincture of kino, compound chalk powder, and Ford's laudanum, (a saturated tincture of opium with the addition of spices.) He took occasionally at bed-time, when there was evidence of vitiated biliary secretion, small doses of the *hydr. c. cret.*, joined with *c. pulv. ipecac. compos.*

A journal of this case would occupy too much space; I shall content myself therefore with a brief general statement. At the middle of March it was evident, both by the general signs and by the local indications, that the expected softening process in the tubercles was advanced. He was thinner and weaker, and his ankles were swollen towards night; the expectoration was increased in quantity, more or less puriform, and often colored with blood; the night sweats were usually profuse. In the right axilla I detected by the stethoscope a resonance approaching to pectoriloquism. The sound on the right side was dull to a great extent, and the breathing was very imperfect.

For the most part he maintained a tolerable appetite, but his appearance was altogether so unpromising, that I almost despaired of any success. He persevered with inhaling. I changed the iodine for chlorine for a short time, but of his own accord he returned to the use of the iodine, judging from his feelings that it was by far the most useful. When the bowels became settled, I gave him the *mistura ferri composita*, and changed it at the end of a fortnight for the mixture of sarsaparilla with alkali, or for one with quinine, according to circumstances. I directed some porter and a little sherry, with as substantial and nutritious diet as his digestive powers would allow.

At the end of another fortnight pectoriloquism in the right axilla was unequivocal; the expectoration was abundant, and the sputum examined by optical means gave prismatic colors. The respiration was improved; there was less of hectic fever in the day, and the night perspirations more abated.

From this period he improved, steadily pursuing all the means of treatment. Now, in the third week of November, he does not appear the same individual as when he first consulted me, so wonderfully is he recovered in flesh and strength, and his spirits are quite regained. He has scarcely any cough remaining, and his breathing is comfortable. The pulse is 76 to 80; the animal heat 98 degrees. He has resumed his former occupation without inconvenience, and I have every expectation that with proper care on his own part, he will enjoy future health in a very comfortable degree.

Case II.—A gentleman, aged 26, of the middle height, muscular, of the mixed temperament, well formed in the chest, usually enjoying good health, with the exception of a liability to take cold, and have a catarrhal cough in the winter season, caught cold from exposure for some hours on horseback to a north-east wind, in March, 1833. Inflammatory symptoms, with pleuretic pain occurred, and general and local bleeding was used, with blistering, and an antiphlogistic treatment.

I saw him first in the beginning of June, and received the following account of his case from Dr. Skrimshire, of Peterborough, in Northamptonshire. "This patient is the subject of recent but rapid tubercular phthisis." Then detailing the treatment which had been used, he adds, "I have not, however, at any time reduced the rapidity of pulse, or the urgency of the cough, for more than a day or two; the wasting has been progressive and rapid; and the expectoration, though never profuse, has for the last three weeks or a month been puriform."

I found the dull sound on percussion over a considerable extent of the left side; the respiration imperfect, and near the axilla the indication of pectoriloquism was sufficient to render it probable that a small cavity existed at the upper part of the lung. The signs on the right side were good. His breathing was much hurried on slight exertion. The cough was harrassing: the morning expectoration was considerable, creamy, of disagreeable odor, and gave prismatic colors. He was suffering from slight pleurisy of the left side. He could not sleep

without having the head much raised, nor lie well on either side. He had been more sensible of daily hectic fever and night perspirations a month before, then at the period of my visit. The pulse ranged from 112 to 120; the animal heat was 101 deg. He had greatly lost flesh and strength, and his pale and hollow cheeks proclaimed at once the severe character of his disease. It was encouraging, that his appetite was for the most part good, and that the digestive functions were not much disturbed, but the urine deposited lateritious sediment abundantly. So soon as I had removed the pleuritic pain by local treatment, I directed the inhalation of iodine with conium, and treated him altogether on the principles which I have detailed in the statement of my other cases.

This gentleman improved so regularly and favorably, that he went into the country at the end of July, with the feelings of nearly restored health. He had gained flesh and strength, and was almost free from cough. The pulse was regularly under 80, and the animal heat was reduced to 97. He extolled the inhalation as the great source of his cure.

Since this period my patient has taken a journey of pleasure to Paris, and I have the satisfaction of hearing that he finds his strength and general health re-established.*

Case III.—A young gentleman, aged 22, tall, slight, with circular chest, of the nervous temperament, while laboring under great mental excitement, which was quickly followed by inflammation of the membranes of the brain, exposed himself, in a state of delirium, to the cold night air, when without clothes. Bronchitis followed. He lost blood from the arm and by leeches, and blisters were applied.—It was observed that the severe symptoms affecting both the head and chest alternated remarkably. When I first visited the patient, he appeared pallid and exhausted, scarcely equal to the least conversation; and if any exciting topic was touched upon, he became delirious.—The eyes were bloodshot; he could not bear light or noise; said that his nights were almost sleepless; that his brain often "seemed on fire;" and that his greatest comfort was to have his shaved head washed with the coldest water. He felt his chest bound as if with cords; the breathing was uneasy; cough was frequent and exhausting; the expectoration was in very large quantity, of highly puriform appearance, much covered with blood, and of offensive odor. The pulse was from 120 to 130; the animal heat 102 degrees.—Hectic fever was urgent, and on most nights the perspiration was excessive. The urine was of a dark color, and deposited lateritious sediment in the greatest abundance. On the right side, over the upper part, the sound was dull; the voice gave much resonance to the stethoscope near the axilla. It seemed very probable that some ulceration had taken place. He was not at this time equal to the

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*Since writing the above, I have seen this gentleman, and find him quite well. His pulse is 68.

task of inhaling. I directed a blister to the chest, and the following mixture:—

℞. Potassæ Bicarbon. g. c. viii.; Succ. Limon, ʒij.; Mist. Amygd. ʒiv.; Syrupi Tolutan. ʒij.; Acid. Hydrocyan, *m* x; Gutt. Nigr. gtt. xv.; Potassæ Nitrat. ℈ij. M.

Of this two tablespoonfulls were taken every four hours. He derived great relief from this medicine; but his sleep being still deficient, I directed the use of the morphine syrup at night, and its effects were most satisfactory.

He gradually improved in general health; but as the brain acquired a more healthy condition, the pulmonary symptoms became more urgent. The cough sometimes continued for an hour without ceasing; and the expectoration, which was uniformly more or less colored, was in quantity, upwards of a pint in each 24 hours.

I was resolved not to delay longer the trial of inhalation, and began with a small proportion of iodine, joined with my usual preparation of conium, the saturated tincture. At first he experienced great giddiness and sickness, and could only inhale for five minutes. He was in so weak and nervous a state (hardly able to raise himself in bed) that he was timid, and alarmed at the idea of the new treatment.—With better courage, however, he resumed it on the following day; and I was highly gratified to hear him, in a short time, express in glowing terms the delightful relief which he experienced from inhaling, which he said not only relieved his cough and breathing, but "calmed him all over." Many of the symptoms remained urgent for a week;—the quick pulse; the breathing easily hurried; the cough much excited by continued conversation; hectic fever at mid-day severe; perspiration at night excessive. But some appetite returned. There was more tranquility of the nervous system, and much sleep was procured at night. Some decoction of bark had been added to the mixture. The bowels required regulation; and a pill with *pilul. aloes c. myrrh.* and *pulv. jacob.* answered perfectly. In other cases I have mentioned the remarkable reduction in quantity, and alteration in quality, speedily produced in the sputum by the influence of the iodine inhalation; but I never witnessed this effect more strikingly produced than in the present instance. Within three days the quantity was lessened by one-half, and it was much less colored. At the end of a week it did not amount to more than four ounces, and in another ten days it was reduced to an ounce, with here and there only streaks of blood.

I am happy to add, that the patient is advanced towards convalescence, and, I hope, may, with great care on his own part, be restored to health. He has gained flesh and strength, and has a good appetite. When he is in a state of perfect quietude the pulse is below 80, but is soon quickened by a little exertion. The animal heat is now only 98 degrees. He is in good spirits, and is confident of recovery, but he still has cough, with sometimes, colored expectoration; he has now and then copious night sweats; and after sitting up some hours his ankles become swollen. He continues to inhale regularly, and with un-

abated satisfaction. He uses the lotion for the chest, and the flesh-brush, with sensible benefit. He takes sulphate of quinine with sulphuric acid, &c., in the day, and the morphine syrup at night. He is quite free from hectic fever, and pursues a highly restorative diet with evident advantage.

Case IV.—A gentleman, aged 24, of circular chest, of the mixed temperament, often wearing in his cheeks a color like hectic flush, of a very consumptive family, was attacked with troublesome cough about four years ago. The expectoration was occasionally colored with blood, and he found for the first time that his breathing became distressingly hurried by slight exertion. He had lost flesh and strength within a short period, and was much alarmed, as were also his friends, with the dread of pulmonary consumption, from which a brother and sister had died. The indications afforded by auscultation rendered it almost certain that his lungs were tuberculated, although not *en masse*. He inhaled iodine and conium with the greatest advantage; but being of an active disposition, and disliking confinement within doors, he went to Maderia, where he passed the winter and spring, two years in succession. The last winter he passed at Lisbon. During his residence at that place he caught cold, which was followed by cough, attended with colored expectoration, (which he described as a spitting of blood,) every day for a month. He sent to London for an inhaler, the mixture of iodine, tincture of conium, and the internal medicines which I had prescribed for him on a former occasion.

He did not receive the articles till the expiration of a month.—A medical friend in attendance upon him used his strongest persuasions to dissuade him from inhaling, under the circumstances of a troublesome cough, attended with colored expectoration, assuring him that in all probability a dangerous hæmorrhage from the lungs would follow. He, however, fortified by his former experience, was resolved to adopt the treatment; and, accordingly, he inhaled the solution of iodine, with the addition of tincture of conium. He informs me that after the space of three days, the blood entirely disappeared; the cough was relieved, and in a short time he recovered his health.

Case V.—A young woman of delicate frame, and rather narrow chest, in the year 1825, suffered from cough and difficulty of breathing, for which she was bled twice from the arm, and blistered repeatedly.

In 1826 blisters were used; and she took digitalis with some advantage to the shortness of her breath, but with injury to her stomach and nerves.

During the two following winters blisters were applied.

In 1830 I was consulted, when she was suffering from very troublesome cough, short breathing, a sense of tightness and of soreness in the chest, without any fever. Her breathing was like that of an asthmatic person, and always became distressed under the least exposure to a foggy atmosphere. She was getting thin and weak, and she had also a consumptive look.

I directed the inhalation of iodine and conium, in conjunction with the washing and friction of the chest; and no other treatment was employed. Suffice it to say, that she recovered in the most favorable manner.

Capt. Kater, in whose service the patient lived, informs me that since the period of my attendance she has but rarely been affected with her complaint; and has, on each occasion, obtained relief in a few days from having recourse to the inhalation.

I could multiply examples equally in favor of the value of inhalation of iodine and conium, as those which I have stated; but I have no right to trespass further on your pages; and I trust that I have offered sufficient proof to satisfy every candid reader.

I will take the opportunity of mentioning that the patients whose cases of confirmed tubercular phthisis, with ulcerated cavities, are detailed in the additional part of my second edition, at p. 138, c. i; p. 184, c. ix; p. 194, c. xi; all continue to enjoy their recovered health, bearing the most happy testimony* to the benefits derived by them from inhalation and the collateral treatment.

It is my earnest recommendation to the profession to give a fair trial to the practice, and to use due *perseverance*, to which principle of acting I owe so much of my success. I am certain that inhalation is often abandoned too hastily, and for very insufficient reasons.

Nor should any one allow himself to think slightly of the method of treatment because in many cases it will not succeed. No human means can avail in the worst cases of pulmonary consumption; but it is my sincere conviction that the best chance would be afforded to the patient by the adoption of the particular and general plan which I have laid down; and, certainly, it will be found to render the comfort of largely mitigating the symptoms, even when the force of disease is too aggravated to admit of cure.—*Lond. Lancet.—Bos. Med. and Sur. Journal.*

Wimpole Street, Dec. 6, 1834.

15. *Mercurial Inunction in Erysipelas.* By Adolphus Taylor, M. R. C. S. L.—The pages of the Lancet for the year 1832, No. 463, afforded me an opportunity of advocating the employment of the mercurial ointment in erysipelas. I am happy to observe that the attention of the profession has, since that period, directed itself with success to the adoption of a remedy which has proved itself as useful as it is simple in its nature: and it is with much satisfaction I perceive that your very valuable journal has been instrumental in procuring its adoption by eminent practitioners in the sister countries.

The opportunities afforded me of witnessing the disease in question, since the above mentioned year, have not been few; and the facts they

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*The several patients who have recovered have expressed their desire that I should refer to them any consumptive invalids, or their friends, who might wish to be assured upon the advantages of the inhaling treatment.

have exhibited may not be uninteresting to the medical world; or, at all events, may lead some of its members, who are favored with ample opportunities of encountering this troublesome malady, to investigate the circumstances more closely than other engagements have allowed me to do. A statement of individual cases would trespass too much upon your columns, to the exclusion of matter equally important. To avoid such injustice, I will therefore, concentrate in a brief account those guiding principles which have fallen under my observation.

In a simple case of *idiopathic* erysipelas, when seen before the formation of vesicles, the constitution not being impaired by excesses of any kind, I have seldom found it necessary to employ any other remedy than the *ung. hydr. fort.*, paying attention to the state of the bowels and enjoining low diet. I cannot recollect ever being necessitated to make use of more than five applications, and frequently not more than three were required; in these cases I did not find that the mercury at all affected the mouth. When, however, the patient (as is but too often the case in erysipelas) had weakened his constitution by intemperance, and there was much disposition to œdematous effusion; or when any other cause had abstracted a portion of that power which the body possesses of resisting disease; *then*, where stimuli were indicated, a perseverance in the use of the same remedy has indeed shown its most decided advantages, exhibiting a striking influence over the progress of the disease, and preventing its extending to internal and more important structures. In such cases, I have almost invariably found the mouth become affected, while the decline of the symptom has, in a marked manner, followed the appearance of ptyalism. From mercury in no other form have I met with the success which has resulted from the application of *ung. hydr. fort.* The other preparations of the same metal were either discontinued from their too stimulating nature, or have seemed to be ineffectual in arresting the progress of the malady. Perhaps, however, I might suggest that were the case to have proceeded to such extent as to show a tendency to gangrene, the *linimentum hydrargyri* of the Pharmacopœia would, by its combination of mercury and camphor, be a preparation advantageously adapted to the case.

Unless the ointment be applied *immediately to the part affected*, I have not observed any beneficial results from its employment, and in some cases where, for experiment sake, I ordered friction with the mercurial ointment to the groin, for erysipelas on the leg, it was not only of no service in arresting the disease, but the latter went on increasing under the treatment. As a rule, with respect to the *temperature* practised towards the affected part, it will be well to mention that the ordinary atmospheric standard has invariably been better suited to the cases that have occurred within my view. About a month since, I had an opportunity of observing, in a very pointed manner, the good effect of this remedy. It was in the case of an ill-nourished, attenuated, pauper female, who had been a frequent subject of erysipelas: in this case, it made its appearance on the right thigh, and was rapidly extending. I had the satisfaction of arresting its pro-

gress by the mercurial ointment alone, for no other remedies were employed but a cretaceous mixture, to remove an accompanying diarrhœa: under different plans of treatment she acknowledged that her illnesses lasted, and with far greater severity, for a much longer time than the period (a few days) she remained under my care.

Such are the gleanings I have to offer to the notice of my fellow brethren, and to their judicious conduct I leave the power which experience has taught me the mercurial ointment possesses to alleviate suffering, and palliate one of the most inveterate diseases to which humanity is liable.—*Lond. Lancet.—Bos. Med. and Sur. Journal.*

16. *Fatal Effusion of Blood into the Pericardium.* By Dr. Carson, of Liverpool.—The following very interesting case we copy from the first number of the Liverpool Medical Journal—a new contemporary which augurs well, if we may judge by the first specimen.

"Mr. W. a gentleman about 52 years of age, of a tall and robust form, clear complexion, subject occasionally to dyspeptic affections; though of very regular and temperate habits; of an active disposition, though his occupation was sedentary and confining; had been for 12 months affected with considerable anxiety of mind, in consequence of the doubtful issue of some building speculations. Towards the end of Lent, which he had rigidly observed according to the injunctions of the Catholic church, on the 11th of March, a day exempted from the prohibitions respecting diet, he had eaten freely of beef-steaks, with onion sauce. He was at that meal sparing as usual in the use of wine. On the evening of the following day, he was engaged in a fatiguing and rather anxious way, with the business of a club, of which he was treasurer. On his return from the club, about 11 o'clock at night, in company with two of his friends, when he had nearly reached his own house, he was seized with faintness and debility to such a degree, that without the assistance of the friends who accompanied him, he would not have been able to have kept his feet. Soon after his arrival at his house, he was visited by Mr. Bromilow, his medical attendant. He described himself as faint and exhausted; complained of an obtuse, heavy pain at the precordia, and was affected with flatulent eructations. His respiration was free, his pulse 70, and regular, though weak. He had no affection of the head, nor pain any where, excepting as described in the chest. His bowels had been opened that day. Mr. Bromilow ordered an antispasmodic draught; and left him with directions to take something warm, and go to bed. He took the draught and a weak glass of brandy and water. At 3 o'clock he sent for Mr. B. again, and, as the pain in the chest was not abated, he expressed a wish to be bled, which Mr. B. agreed to, more with the hope of satisfying his mind than from any great necessity for that measure being indicated by the symptoms. He lost a pint of blood. An opiate was then administered. At this visit Mr. B examined the chest more minutely. He applied his ear to the different regions of the naked chest, but perceiving no unusual sound, or vibrations, concluded that the heart, lungs, and large vessels were in a sound state. At 5 o'clock

A. M. I visited him. He felt cold, perspired gently, and chiefly complained of a pain in the chest, which he described as wearisome and oppressive. It was not increased by taking a full inspiration. He had vomited a little in the course of the night, and had discharged some of the onion sauce he had taken the day preceding the attack. He was much troubled with flatulency, and belched frequently, but was not relieved by it so far as regarded the pain in the chest. His pulse was regular; the heat of the body natural; and respiration good. He had had no sleep.

From the information given by Mr. Bromilow, connected with my own observation, I considered that nothing could be indicated by the symptoms beyond an affection of the stomach, which is known to exhibit itself in such anomalous forms. He took four grains of calomel, and two of opium. We visited him again at half after eleven o'clock. He had had little sleep. The symptoms remained the same. He was ordered an aperient mixture, and we proposed to visit him again at seven o'clock. At this visit, I replied to the anxious inquiries of the family—that we did not see any cause for alarm: that the complaint seemed to arise from indigestion; and that I had no doubt he would recover. At three o'clock in the afternoon he sent for Mr. Bromilow, as the pain still continued unabated, and wished to know if he might have any thing to rub the part with. The bowels had not been opened, and he had had little or no sleep. A short time before seven o'clock, the hour at which we had proposed to visit him, and at which I was prevented from attendance by an urgent call to a distant part of the country, Mr. W. was seized with what the family conceived to be a fit: and a short time after the arrival of Mr. Bromilow, expired. In consequence of my unavoidable absence, other physicians were called in, and two arrived, but not until after the death of the patient. I applied for permission to open the body, which was granted. The body was examined twenty-four hours after death, by Mr. Bromilow, in my presence, and in that of my son, Dr. Carson, jun. The following were the appearances on dissection.

Upon opening the chest, the lungs on both sides were perfectly sound and collapsed. But, notwithstanding the collapse, the chest was filled more than it usually is when the lungs are sound. This indicated the existence of some foreign substance or morbid enlargement of some of the organs. The pericardium was found accordingly to be immensely distended by some fluid, which, when this bag was opened, was found to be blood, partly liquid and partly coagulated: the quantity was not less than three pints. It was purely blood, without the admixture of any fluid indicating inflammatory action. The external surface of the heart, and internal surface of the pericardium, were examined carefully, but no ruptured vessels, from which the blood might have flowed, were discoverable on either of these surfaces. The heart itself was perfectly sound, the valves were in good condition, and no disease existed in any of the large vessels. The lungs were free from adhesions, and were every where sound. The other viscera were in a sound state. A great deal of care and time

were expended in trying to discover the source from which the blood had flowed into the pericardium, but in vain: a slight ecchymosis was observed about the root of the pulmonary artery. Dr. Baillie, in his *Morbid Anatomy*, says, 'Cases have occurred, though very rarely, in which a large quantity of blood has been accumulated in the cavity of the pericardium, but where no rupture could be discovered after the most diligent search, either in the heart itself, or in any of its vessels. This appears very wonderful, and not at all what any person would expect *a priori*. Two conjectures have occurred to me, to explain this phenomenon: 1st, that the blood vessels on the surface of the heart have lost their compactness of tissue, so that the blood may have escaped by transudation. The other is, that the blood may have been poured out by the extremities of the small vessels, opening on the surface of that part chiefly of the pericardium forming the immediate cover of the heart, from their orifices having been to a very uncommon degree relaxed.'

There is a case related by Dr. Alston, in the sixth volume of the Edinburgh Medical Essays, in which the disease of the chest was of long standing. Three pints of blood, which was partly coagulated and partly mixed with lymph, were found in the pericardium. No ruptured vessel was discovered either on the outer surface of the heart, or the inner surface of the pericardium. Upon pressing the heart, a bloody serum oozed out of a great many orifices on its surface, and principally near its base. No disease was discovered in the interior of the heart or large vessels. Dr. Baillie refers to two cases of extravasation of blood into the cavity of the pericardium, in which the source of the hæmorrhage could not, after the most careful examination, be discovered. In both these, functional disease of the heart had been observed for some time previous to the death of the patient. Vide Medical observer, vol. 10, p. 330. Memoirs of Medical Society, vol. 1, p. 238.

Various opinions have been advanced respecting the sources from which, in the above cases, the blood was derived. One of the suppositions made by Dr. Baillie appears to me to approach the nearest to the truth, which is that the blood had oozed out of the small vessels on the internal surface of the pericardium immediately covering the heart. It is probable, I think, that the oozing, particularly in the case now narrated, arose from the condition of the blood, and the relaxed state of the fibres. It would appear that the disease was general, and that the shivering, faintness, and depression of spirits, were not the effects of the flow of blood into the pericardium, but that this last was, like the affections stated, the effect or symptom of the general disease,—that in fact there existed a morbid state of the whole system, similar to that which takes place in purpura, in some kinds of epistaxis, hæmatemesis, and in bleeding from the bowels in typhus fever. The pain in the chest was in the first place, occasioned by the admission of blood into a cavity not accustomed to the stimulus of that fluid. There is no reason to suppose that the action of the heart would be mechanically affected until the quantity of the blood was pretty considerable;

for the blood would readily follow the dilatation of the pericardium, occasioned by the elasticity of the lungs, when the chambers of the heart had finished their contractions. No sound was perceived, on carefully examining the chest. Indeed no sound could be excited, as no fluid was poured from one vessel into another. For as the auricles expand as the ventricles contract, the change of place in the constituents of the fluid in the pericardium would be inconsiderable, and made with quietness.

There does not appear to be any symptom in this case that would have warranted the medical attendants in giving an unfavorable prognosis. As a matter of prudence, a less favorable one might have been made, but the same prudence would not permit the expression of a favorable prognosis in any case whatever."

Upon this case we may be permitted to make a remark or two. We have no fault whatever to find with the treatment of the case, nor do we differ from the highly talented narrator of it as to its pathology—or rather etiology. But we must say that the exploration of the chest was incomplete, and that *percussion*, added to auscultation, would *undoubtedly* have led to a grave prognosis. The state of the pericardium would have caused a dull sound, on *percussion*, over a very unusual space, and would have caused the greatest alarm in the mind of the medical practitioner accustomed to thoracic exploration. The want of any symptoms of enlargement of the heart, too, would have led to the inevitable conclusion that there was fluid of some kind in the pericardium. Thus, then, we see the great value of auscultation and percussion. In the present case, it would have saved the medical attendants from the suspicion (and indeed a justly founded one,) that they were unaware of the danger, and consequently of the nature of the disease. Nothing could have saved the life of the patient, had the physician been perfectly acquainted with the true state of the case; but his diagnostic and prognostic skill would not have suffered, had an accurate exploration been made.

We may take this opportunity of saying that, were we to be deprived of one of the two means of exploration, we would far rather give up auscultation than percussion. The latter is far more valuable than the former, though they prove auxiliary to each other.

We are sure that Dr. Carson will excuse these remarks, as they can have no other object than the good of the profession. Dr. C.'s reputation is far above the reach of censure, were we inclined to be censorious, which we are not. His brethren are deeply indebted to him for the candid manner in which he has narrated this interesting case.—*Med. Chir. Rev.*

17. *Ulcers of the Leg.*—From a little volume of considerable practical utility, entitled "Observations on the Ulcerative Process and its Treatment, particularly when affecting the Leg," by Mr. Eccles, we make the following extract, as a sample of the matter and manner of this unostentatious publication.

"The cases in which the morbid condition of the condensed cellular

tissue forming the cup of the ulcer appears to be the cause of continuance of the disease, are distinguished by the induration of the edges, the scantiness of the secreted matter, and the insensibility of the sore. There can be little doubt that bandaging and various stimuli have some effect on the cellular structure in question, as well as on the sanguineous and secernent vessels; but there are two agents which I find of particular efficacy in removing the more obstinate peculiarities of such cases. These are mercury and iodine. The former is well known to possess the power of lessening induration when given internally, and some have thought that the same efficacy is attached to its local application. After much experience, I am, however, brought to the conclusion that mercurial dressings are void of any specific utility analagous to the constitutional action of the remedy; that they stimulate in peculiar modes, but perform no important part in effecting the removal of indurated cellular tissue. The local effect of mercury is extremely great in changing the character of sores in general, and in the form I am describing, it is very salutary. We shall find, however, that if its action be not immediate, no good purpose will be answered by its continued employment.

Iodine, internally administered or externally applied, and even in those forms which have lately been described as inefficacious, I have always found of great service in removing this species of induration. It often requires to be used for a tedious length of time, to be remitted should it produce much constitutional derangement, and again employed when the state of the general health will permit. I have not met with a case in which iodine has failed to remove the induration; but if such were to occur, it would perhaps be advisable to remove the indurated structure with the knife. This has been done, and certainly with perfect success, the new wound healing rapidly. But so decisive a practice would only be justifiable where every other method had repeatedly failed."

There are many judicious observations in this book on the ulcerative process, as it affects the different animal structures, which deserve the attention of the young surgeon.—*Med. Chir. Rev.*

18. *Method of Reducing Dislocations of the Head of the Humerus, practised at the Bristol Infirmary.*—This is detailed by Mr. W. F. Morgan, late house-surgeon to the institution.

"As soon as the patient is seen, and the nature of his injury ascertained, he is placed sideways on a common chair, with the dislocated arm hanging over its back, which is padded for the reception and support of the axilla. A reel-towel is then fastened on the arm, immediately above the condyles, by a running noose, with the knot outwards; and its lower part is formed into a loop some way above the ground, to receive the foot of the surgeon. One or two assistants press on the shoulder, much in the same way as Mr. Toogood advises, to fix the scapula and prevent the patient from rising, and the surgeon puts his foot, or, occasionally, his knee, into the loop of the towel, and gradually and unremittingly bears on it with the whole weight of his body.

In a very little time, generally within three or four minutes, the head of the bone slips into its place with an audible jerk; the patient's sufferings are moderate, and of short duration, and the use of his arm is soon restored.

In dislocations of long standing, of course other and more powerful means are requisite; but, in several of the cases to which I have alluded, many hours, and even days had elapsed, before the patients applied for relief. I have, likewise, notes of the case of a strong and muscular man, who was admitted with a dislocation of the shoulder, complicated with fracture of the humerus at its middle, in whom the reduction was effected as readily as usual, by binding up the arm with splints, and applying the towel on the outside of them."

In the great majority of recent cases, the reduction is readily, simply, and quietly effected by the heel of the surgeon in the axilla. No towels are necessary—no further preparation is required than removal of the surgeon's boot—no other requisite than a moderately-clean pair of stockings.

We now take leave of this volume of Transactions for the present. There are many articles for notice—some for criticism, in our next. Till that makes its appearance we wish the contributors adieu. It would appear ill-natured to hint a defect on parting, yet censorious readers might complain of prolixity in several of the articles.

19. *On the Certainty and Safety with which the Operation for the Extraction of a Cataract from the Human Eye may be performed, and on the Means by which it is to be accomplished. By G. J. Guthrie, F. R. S. &c.*—This pamphlet is printed for the benefit of the Ophthalmic Hospital, a valuable institution, much wanted and much prized at the western end of the metropolis, and which owes its maturity, if not its birth, to Mr. Guthrie. We have so frequently introduced this able surgeon to the notice of our readers, that we may proceed, without farther preface, to extract from the pages of the work before us a few of the practical recommendations contained in it.

Mr. Guthrie alludes to Wenzell's remark, that an oculist must spoil a hatful of eyes before he can extract a cataract well. This Mr. G. believes must be the case, if the surgeon implicitly pursues the directions which were given at that period. We can well believe that Mr. Guthrie's hatful is a small one—a low-crowned modern beaver, not admitting of comparison with the huge and capacious structures which formerly surmounted the human head.

We shall endeavor to present Mr. Guthrie's sentiments on some of the points which have excited most discussion amongst oculists, as well as upon those in which his experience may render his opinion valuable.

The following are his directions respecting the manner in which the patient should be prepared for the operation.

"It appears to me, that the same preparation only is required that would be considered necessary previously to the performance of any surgical operation of importance, and particularly about the head. If

the patient is in good health, and free from any appearance of disease, nothing more is wanting than a couple of gentle doses of physic, and moderate abstinence during the week preceding the operation. If the patient has lived regularly well, and is disposed to be of a full habit, twelve ounces of blood may be taken from the arm the evening before the operation. If the health is impaired from an irregular mode of life, it should be amended. If a fit of the gout is impending, or is supposed likely to occur, it should be allowed to pass over before the operation is performed; or if the patient has a strong determination of blood to the head, he should be cupped a few days before it is done, in addition to the bleeding recommended on the evening preceding the operation; and the same or greater precautions should be taken when there are indications of a tendency towards paralysis or apoplexy. These are, however, only the ordinary precautions which a well-informed surgeon would take in all other cases. When the operation is to be done on nervous persons, care must be taken on the other hand to prevent any undue depression of strength or spirits."

Mr. Guthrie was formerly of opinion that both eyes should not be operated on at once. He was not so certain of success then as now, and he does recommend the simultaneous performance of the operations, chiefly for the following reasons:—If an accident should occur, and a very vigorous or prolonged after-treatment be necessary, the patient, whatever may be the result, will not readily submit to a second: and, if an elderly person, will not be in a state to submit for a great length of time afterwards; and if that second operation should be unlucky, requiring also a vigorous after-treatment, the loss of health, and ultimately that of life, may be the consequence. Elderly persons can generally bear a vigorous treatment *once* well, and recover from it completely; but they cannot often bear and recover from it *twice*.

The operation of extraction should always be performed with the corneal incision in the direction upwards. Mr. Guthrie's directions for the management of the lids and of the eye are most judicious.

"For the operation on the right eye, the surgeon should place himself behind the patient, and he will usually find it necessary to stand on a stool, in order to raise himself to such a height, that he may readily lean over, and have his hands at perfect ease; and in that position and distance from his own head or chest, which is most convenient to him. The patient's head being a little inclined backwards, and duly, although gently and comfortably supported by the cushion, or back of the chair; the surgeon leaning over from behind, brings the *two* fore-fingers of the left hand over the forehead gently down on the eyelid, and raises it up slowly and tenderly, so as to fix it ultimately against the upper edge of the orbit; and to be able to retain it there so perfectly with the end of *the* fore-finger only, that the patient cannot lower it or close the eyelid by any effort he can make. He should also be able to do this and to make a little pressure on the eyeball, in order to fix it at the moment the incision is begun. As soon as the index finger is in this position, the second finger leaves the upper, and lowers the under

lid, and fixes it against the edge of the orbit below. The eye is thus completely exposed, and may be almost fixed between the two fingers. To do all this well, requires a certain degree of practice, but which is very easily acquired. It must be done very gently, very tenderly, and without giving pain, or almost uneasiness. The error usually committed, is in using too much force with the extremity of the finger, which gives pain, and makes the patient swerve; and it is an error of such great importance, that the surgeon must practise this part of the operation until he feels that he does it as a matter of art, not of force.

The left eye may be opened, and fixed in a similar manner; or the surgeon standing before the patient, raises the upper lid with the side of the fore-finger of the left hand, and depresses the under lid with the thumb, the hand being over the nose. The pressure of the fore-finger tends to fix the eye at the same time, and to render it as immoveable as possible, and this mode of proceeding I generally adopt in preference, for the left eye."

Mr. Guthrie ably exposes the fallacy of the popular belief, that the eye is a very delicate and a very sensitive organ, and hints that the notion has been propagated and fostered for interested purposes. He observes that such a notion cannot long be entertained, by any who are in the habit of witnessing the performance of operations on the organ. Mr. G. observes, that full exposure of the eye diminishes, in a great degree, its sensibility. He recommends the surgeon to acquire the power of operating, without the assistance of another in steadying the eye; unity of purpose is gained by this. The knife which he prefers is spear-pointed, and blunt on the back.

"The width depends on the maker, my rule being that it shall be as broad as the perfection of the point will admit, and the artist finds that he cannot put the best point on a broad instrument, so that it is essentially rather a narrow knife. It should be of that degree of equal thickness which will admit of its passing through the cornea with the greatest facility, and of its bearing the very best possible point and edge. Every thing in this operation depends on the point of the knife, for the operation must fail either partially or totally, if the point of the knife is not a good one; nothing else signifies so materially, and it must be attended to. The surgeon should never depend on the instrument maker: he should try it on the fine piece of thin leather which ought to have a place in every case of eye instruments. Through this it should pass as through water, without the slightest sound; for if the slightest sound be heard, the knife is unfit for use. Held between the fore-finger and thumb, with the little finger resting outside the orbit, the surgeon awaits calmly the steadying of the eye, which should be fixed nearly in the centre, the pupil looking directly forwards. The flat part of the cornea-knife may now be made to touch the face of the cornea as the probe did before, in order to ascertain that the patient is totally free from alarm, and that the eye is steady."

Mr. G. sides with the advocates for the use of belladonna before the operation. It should be applied on the previous evening. After stating that the upper half of the cornea must be divided, Mr. Guthrie makes

some lively remarks on the mode in which the knife is to be made to enter it.

"The manner of entering the point of the knife is disputed. The cornea being composed of several layers, constituting a substance of a certain thickness, there is some danger of passing the knife between the layers, and not across the anterior chamber of the eye in front of the iris, if care be not taken that the cornea is fairly penetrated in the very first entering of the knife; which accident may happen, if the anterior chamber is small, and the iris is close to the cornea. In order to avoid this error, modern authors (I believe, without an exception,) recommend that the knife should be entered in the direction of the iris, as if the point were to be carried directly against it, but that as soon as the cornea is penetrated, and the point is in the anterior chamber, the handle of the knife is to undergo a sort of almost imperceptible depression towards the temple, by means of which, the blade is to be placed with its flat surfaces parallel to the iris, across the anterior chamber; and it is said that the more quickly this is done, the less chance is there of the escape of the aqueous humor. To all this I object in the most decided manner; the gentlemen who think they do as they say, are, I believe, mistaken; and when they do, they do nothing but mischief. The very turning, or attempting to turn the knife, generally leads to the escape of the aqueous humor, the very thing they want to preserve, and to all the evils it is most desirable to avoid. The knife should in my opinion, be held flat, and the point is to be introduced steadily in the same direction at the proper place; and if the operator can neither see nor feel when it has penetrated the cornea, and is in the anterior chamber, the sooner he abandons operating the better. If a man has eyes, he can see when the point of the knife has entered the anterior chamber; and if he has fingers he will feel when the resistance offered by the cornea is overcome. The young surgeon, instead of practising these manœuvres, which are worse than useless, should practice on sheep's eyes, until he has acquired that tact, which will enable him to know when his knife is in the right place."

Mr. Guthrie alludes, in a forcible manner, to the disposition in the eye to turn inwards at the moment of the incision, and enjoins the utmost coolness on the part of the operator. He dwells very strongly on the fact that the inner layer of the cornea is more tough than the outer, and gives many interesting practical hints to the operator. We regret that we cannot introduce them. For the following piece of information and advice, we must certainly make room.

"When the perforation or penetration is completed, and well done, the patient and surgeon are in a very different relative situation to each other; before it was done, the eye was almost entirely under the control of the patient; after it is done, the eye is almost entirely under the control of the surgeon. It moves with, and of course follows the motions of the knife, and if it has turned inwards, even into the very internal angle, the knife can bring it gently back to its due central position, but not without the loss of the whole of the aqueous humor;

and the iris is now seen bulging forwards on the edge of the knife, sometimes even overlapping it. It is at this point that a young operator is confounded; he sees that the iris must be cut, if it cannot be moved out of the way; he thinks he has failed, becomes confused, hesitates, and does mischief, or withdraws the knife and abandons his operation: or if he is a clear headed person, he bethinks him of the directions he has read upon this subject, and proceeds accordingly; but he does not succeed one whit the better, and in despair, accuses himself of awkwardness. But he is not, however, the person in error —it is those who wrote the directions. I do not mean to say that these gentlemen have willingly deceived the public, but I do say it is my opinion, that they have told only half the truth. It may be that they did not know the other half, and I have no objection to its being so considered, except that I shall be set down for a discoverer of it, whether I will or not, which I am very desirous to avoid. The directions given in such a case by the Baron de Wenzel, and which the late Mr. Ware said, were the most important in his whole book, are, that the cornea must be gently rubbed with the point of the fore-finger, which causes a contraction of the pupil and consequent drawing back of the iris, when the surgeon must complete the operation; but if the iris again fall forward, before this is accomplished, he must keep the finger on the cornea, until it is effected, by which, all danger of the iris suddenly protruding will be avoided. It is also recommended that the surgeon should wait a little, and allow the spasm to subside; and he may wait and rub, and wait again, and then rub again if he pleases, but he will rarely succeed, unless he does something more, and that is, to raise the eye, or in other words, to draw it as it were out from the orbit, whilst at the same time, he presses the cornea flat against the blade of the knife. This is the other and the best half of the secret, and without he does which, he will not succeed in disentangling the iris. A little consideration will, I think, show why it can only be done in this manner. When the aqueous humor has escaped, the cornea becomes flaccid, and the remaining humors of the eye advance, or are brought forward by the action of the recti muscles, so as to press the iris against it. If the knife is between the iris and the cornea, it keeps these parts asunder, as far as its width extends, but not farther, and as it raises the cornea in every part, it would make a vacuum below its edge, between the iris and the cornea, if the iris did not rise up to fill the space, or if the air did not rush in to do it. This effect of the air, is however counteracted by the muscles acting on the eye with greater power; and the consequence is, that the iris is forced upwards into the vacant space, and the air, if any has entered, is expelled. The iris can, however, be only elevated or protruded to a certain extent, in consequence of its circular attachment, and of its disposition to contract towards its pupillary edge, or centre. When the cornea is well raised, so as in some degree to raise the eye along with it, whilst, at the same time, the cornea is pressed against the blade, the iris slides from between them, and the operation may be completed, so as to give rise to a highly successful operation. There is now

another secret to be disclosed, of yet greater importance to the young operator; it is, that the effect of an injury to the iris is very greatly overrated, and that if the operation cannot be completed without injuring it, the injury must be committed. The real truth is, that *no good operators* in this great city of London do otherwise. When the iris bulges much over the edge of the knife, it is often not possible to get it quite clear, by any effort, exertion, or dexterity, on the part of the operator. If any man says otherwise, I do not hesitate to say that he is in error, and that his own operations, if he has ever done any, will show it. This being the case, the operator has only a choice of evils, to proceed under any circumstances, or to abandon the operation. This I have done, and the consequence was, that as much inflammation followed as if the operation had been duly performed; and the eye was not upon the whole in a very favorable state for a future operation, the iris being usually a little injured, and the consequent inflammation rendering the pupil less regular and dilatable than it ought to be. If the operation is on the contrary completed, the iris is slightly shaved as the knife advances, or a piece may even be cut out, but the patient will, nevertheless, have a very good eye. The cut in the iris will often not be discernible, unless the upper lid is raised to look for it, and he will see remarkably well, after a very speedy recovery. In fine, I may say the operation is always done in this manner by all those who know what they are about, and the eyes of persons of all ranks who have been operated upon, either in London or on the continent, prove it. It is possible that the operators may not know what they have done, or how they did it; they may have supposed they were doing one thing, while they were actually doing another. I do not dispute this, or anything else, in the least, but I write to give such information to young surgeons as will enable them to operate successfully, and to know why and wherefore they are successful."

For many valuable observations, and for some particulars respecting a patient on whom De Graefe operated at Mr. Guthrie's request, whilst Mr. G. himself extracted the lens of another, we must refer the curious reader to the pamphlet itself.

There is a circumstance attending the protrusion of the vitreous humor, with which young operators should be familiar.

"The lens," says our author, "does not however always come out so easily and regularly. It sometimes happens that instead of rising up by its upper edge, the vitreous humor, which appears black because it is transparent, and allows the black pigment beneath to be seen through, is perceived pushing forwards between it and the iris.—Nothing can prevent a portion of this vitreous humor being protruded or expelled, and no attention need be paid in order to obviate it, for it cannot be done. But attention must be paid to the fact, that its expulsion under pressure will not in general be accompanied by that of the lens, which, having lost its support, will sink down towards the bottom of the eye, and must infallibly cause its destruction by inflammation if not removed. The surgeon aware of this circumstance, and

knowing that pressure of any kind, that even the mere action of the muscles, will cause the expulsion of the vitreous humor without the lens, passes either the large or the small hook under the edge of the lens, through the vitreous humor, which begins to escape when its enclosing membrane is pierced by the hook, the point of which is to be fairly stuck into the under part of the lens, and thus drawn out. A portion of vitreous humor must of course escape, it cannot be prevented, it was inevitable from the first; but the great object, the extraction of the lens, has been attained. If the surgeon hesitates, and does not calmly and steadily introduce his instrument, and hook the lens at once, the vitreous humor begins to escape, the lens sinks, and the eye will be lost, if he does not instantly pass the hook through the pupil, and hook the lens, as he would catch a fish with a landing hook.—There is no alternative, it must be done, or the eye will be destroyed."

Mr. Guthrie observes, that the loss of a portion of the vitreous humor has been a surgical bugbear in the operation. It is an evil, but not a very great one. The principal inconvenience accruing from it is an irregularity of the pupil, which does not in many instances impair vision. If a very small portion of vitreous humor be lost, it is usually followed by severe inflammation; if a large quantity has escaped, the inflammation is usually less. The pupil is apt to be drawn in the direction in which the expulsion or evacuation has occurred, and usually retains more or less of that distortion. The best method of causing its return to its natural place, is to allow the lid to fall, and then to rub it very gently with a soft and wet sponge, for two or three minutes, which often brings it very nearly back to its central position. Another and a greater inconvenience arising from the evacuation of the vitreous humor, is, that a portion interposes between the cut edges of the cornea when they are supposed to be placed in apposition; and whilst it prevents a rapid union between these parts, it also tends, by allowing the newly secreted aqueous humor to escape, to draw the iris into the line of the incision. If this takes place, the iris adheres to the cut surface, the pupil is permanently and more completely drawn in that direction, and the anterior chamber of the aqueous humor is less perfect, both in shape and appearance, in consequence of the cornea and the iris being brought nearer to each other. This inconvenience arising from the interposition of the vitreous humor between the edges of the incision in the cornea, is to be avoided as far as it can be done, by carefully removing with the curette any part of it which can be seen, and by gently rubbing the eye in the way directed, in order to cause the pupil to return to its proper place.

The adjustment of the cornea is of course a matter of importance. The eye should appear flat. If it does not the improper fulness arises from some displacement of the vitreous humor, which has not burst the membrane in which it is inclosed, but has been pushed forwards by the action of the muscles of the eye, so as to cause the iris to project; the flap of the cornea is seen lying upon it, and is separated by

it from the other edge, with which it ought to be in apposition. Adhesions of the iris and many other evils will ensue unless this be prevented. The vitreous humor must be pressed back into its place by gentle friction on the eyelid covering the ball, by which it may in general be accomplished; but if it will not yield to this treatment, the hook should be introduced through the pupil, and the membrane of the vitreous humor should be punctured, so as to allow the evacuation of one fifth of it, when the eye flattens, and the cut edges of the cornea can be brought into apposition. The extent of evil is now known, and can be duly estimated, and guarded against. In the former case it cannot; and of the two evils, the last should always be chosen, inasmuch as it will lead to the recovery of the patient with a good eye, which the other cannot do.

"The eyelid, being at last closed, is to be retained in that situation by compress and bandage; and it is not to be raised, or the eye opened, for a certain length of time, the duration of which is different, according to different writers. It ought to depend on circumstances; the earliest period is on the third day, but the fourth is much better; and if any difficulties have been experienced during the operation, and there is reason to suspect that union has not taken place, the lid should not be raised for at least a week; although the lower lid may be depressed, to enable the surgeon to see the state of the ball of the eye, and to prevent the accumulation of fluids in it. I never open the eye before the fourth day, although I frequently depress and clear the lower lid on the third, and obtain a view of the globe, the whiteness of which is the best sign of the absence of inflammation. When the eyelid is raised too soon, that is before the union of the cut parts of the cornea is complete, the movement of the globe of the eye, which inevitably follows the raising of the lid, often separates the incompletely united parts; pain of a more or less acute nature is soon felt in the line of the incision, inflammation follows, ulceration succeeds, and the cornea is only completely united by a slow process, attended by opacity, and generally by a drawing up of the pupil; all of which evils would have been avoided in a great measure by delaying the raising of the lid for two or three days, until the parts were more completely consolidated."

The state of the eye can be ascertained by the appearance of the upper lid, which should be carefully inspected twice daily.—Swelling of the lid is a test of inflammation of the organ. On the evening of the operation Mr. Guthrie usually directs the abstraction of from twelve to sixteen ounces of blood. It should never be carried so far as to occasion sickness. The eye may be occasionally fomented with a warm decoction of poppies, care being taken that the eyeball is not moved, so as to cause a separation of the divided parts; all remedies likely to cause sickness should be avoided during the course of the treatment, and active aperients for the first two or three days will, in all probability, be unnecessary, from their having been adopted previously to the performance

of the operation. Mr. Guthrie strongly deprecates opening the eye or meddling with it.

Mr. Guthrie has seen one instance of the reproduction of the lens.

The practical nature of the observations contained in this pamphlet, and the candid manner in which Mr. Guthrie communicates the results of his experience to the profession, will more than excuse the length of this notice. Those who take an interest in opthalmic surgery, (and who, at the present day, do not?) will peruse the quotations we have made with much interest.—*Med. Chir. Rev.*

II. ANALYTICAL.

Art. I.—Change of Climate in Pulmonary Consumption.

Observations on a change of climate in Pulmonary Consumption. By Henry Huntt, M. D.

We have lately been favored, by the respectable Author, with a copy of this little pamphlet, the leading object of which is to inquire into the influence of a change of climate on the prevention and cure of Pulmonary Consumption. Although this malady is less frequent in the valley of the Mississippi, than on the sea-board of the Atlantic, it still is sufficiently common and fatal, to constitute a formidable disease; and our physicians are constantly presented with the difficult questions—"*Doctor, shall I go to the south this fall?*"—"*Will it stop my disease?*" "*Must I visit the Havana?*" "*Will New Orleans answer?*" "*Is there any spot in Florida that is preferable?*" These are momentous questions, and cannot always be answered in a manner that is satisfactory to the patient, or gratifying to the physician.

The object of Dr. Huntt's discourse is to show, by a reference to facts, the correctness of the opinion of our distinguished countryman, Dr. Rush, that the sea-coast is unfavorable to phthisical patients. In doing this, he refers to a variety of authors, who concur in having observed, that a mixture of sea and land air is pernicious to such patients, and that consumption is more frequent in maritime situations than any others.

"In Salem, Mass. during the last five years, it is calculated that the mortality from consumption, is about one-fifth of all the inhabitants

that have died.—In Boston, about one sixth.—In New York, about one-fifth.—In Philadelphia, about one-seventh.—In Baltimore, about one-seventh.—In Washington, about one-eighth.—In Charleston, S. C. about one-sixth."

The following extract serves to show, that even the warm and regular atmospheric temperature of the south, is not sufficient to counteract the pernicious influence of a land and sea atmosphere combined.

"Sullivan's Island is very unfavorable to consumptive invalids. Dr. Richard Randall, late a surgeon in the United States' army, who was stationed at different military posts throughout the southern country, states, that to those predisposed to phthisis, the air of Sullivan's Island is highly deleterious in comparison with that of Charleston—that acute pneumonic inflammation is also more prevalent in the former than in the latter place: that the air of the city of Charleston, though otherwise more pure than that of the interior of lower Carolina, is not so well adapted to those predisposed to phthisis: that the inhabitants of Augusta, Savannah, and New Orleans, though possessing fewer advantages of climate, are less obnoxious to pulmonary affections, than those residing in the otherwise comparatively healthy situations on the sea-board. 'Soon after my arrival,' says he, 'at Sullivan's Island, in 1821, as surgeon to that military post, I thought I discovered a stronger predisposition among the soldiers to pulmonary affections of all kinds, than I had observed at any former stations at the south, and my experience during the succeeding winters confirmed this belief; for the proportion of cases of pneumonia, and of deaths from phthisis, were three-fold greater at this post, than at my former stations in the interior of Georgia and Alabama.'

"The bay of St. Louis and Passa Christiana, are also very unfavorable to pulmonary complaints. Col. George Gibson, of the United States' army, who was stationed at the latter place during three summers, informed me that Passa Christiana was a great resort for invalids from every description of disease; and it was a remarkable fact, that the consumptive cases survived but a short time after their arrival there: whereas invalids of every other description recovered most rapidly. This fact is totally subversive of the common opinion relative to the cause of pulmonary affections in the neighborhood of the sea. Passa Christiana is liable to no variety of temperature—its atmosphere is warmed by the gulf stream, and is exempt by distance and the intervening forest from the cold air of the mountains.

"It is evident as we recede from the sea-shore, that the cases of pulmonary consumption become diminished. This disease is scarcely known among the Indians of our forest; and in many parts of the interior of the country, consumption is extremely rare; particularly on the borders of Ohio, Mississippi, and Missouri, where bilious intermittent fevers mostly prevail. Col. Benton, of the United States' se-

ate, from Missouri, informed me, that the climate of that state was peculiarly favorable to consumptive invalids; and this fact is so notorious, that many persons afflicted with this complaint, have removed their residence to Missouri, in order to prolong their lives. It is not unusual in that climate for consumptive invalids to linger a long time; sometimes ten or fifteen years, whereas near the sea-shore it generally destroys life in a few months."

Dr. Huntt has collected a variety of facts from the writers of Europe, to show that the climate of the south of Europe is by no means favorable to consumption, and finally comes to this conclusion:

"After taking this review of the effects of different climates in pulmonary diseases, we are irresistibly led to conclude, that the United States afford advantages more favorable in this complaint than any other country yet known. Here the consumptive invalid has the advantage of every variety of soil and climate—every facility in travelling—mineral waters that are valuable in diseases of the lungs, and above all, the heartfelt satisfaction of enjoying the sympathy, kindness and hospitality of his countrymen. Let us therefore abandon the blind and cruel fashion of sending our consumptive patients to the south of France, Italy, and other foreign countries, where it has been incontestibly proven that the climate is a sure passport to the grave."

Without designating localities, by name, Dr. Huntt expresses himself to the following effect, on the subject of a selection in the United States of residences for the consumptive or predisposed:

"The consumptive invalid should always remove as far from the sea as possible, and take as much exercise as is consistent with his strength, particularly on *horseback;* his diet should be such as is most easily digested—mild and nutricious. High hills or mountains should be carefully avoided; the air of such places is too pure; there the oxygen gas is too stimulating, and is apt to increase the inflammatory action, to suppress the usual expectoration and sometimes to produce hœmoptysis. Low grounds, on the contrary, appear always favorable to consumptive patients; there, the air is of a low quality, and therefore not so stimulating to the lungs. From experiments which have been made in breathing, the hydrocarbonate, and from observation, we are induced to believe that marshy countries, distant from the sea, where bilious intermittent fevers prevail, are also favorable to consumptive invalids. Places where animal putrefaction takes place, are generally favorable to weak lungs."

Our author entertains a high opinion of the Red Sulphur Springs, of the valley of the Kenhawa, in Western Virginia. These, and other springs in that region, have lately attracted

the attention of the people of the valley of the Mississippi. The Red Sulphur waters abound in sulphuretted hydrogen gas, but are said by Dr. Cullen, of Richmond, to contain no saline matter. The following extract shows their great influence as a sedative:

"The effect of the water on the pulse is one of the numerous, singular, and powerful properties belongiug to it. In about one-third or one-fourth of the cases in which it is employed, the pulse is reduced from fifteen to thirty strokes in a minute. It lessens arterial action to such a degree, that it seldom fails to remove fever, difficulty of breathing, and pain in the chest—unfortunately it does not lessen the appetite, which being commonly indulged, a fulness of habit rapidly follows its use—this gives rise to increased cough, pain, and spitting of blood. From much observation, I would recommend such patients as cannot restrain the indulgence of their appetite, to remain at home; in such cases, the Red Sulphur Water will do no good, and may do much injury—but when the patient can practice self denial, the water may be taken with *greater advantage in all pulmonary cases, than any other remedy* I have ever seen employed for that purpose. It is also an important remedy in cases of enlarged liver or spleen, in dyspepsia, and in diseases of the mucous membrane generally."

We cannot agree with Dr. Cullen, that this water may be taken with advantage, in "all pulmonary cases." An agent of such antiphlogistic and sedative action, is far from being beneficial, or even safe, in the advanced or suppurating stages of tubercular consumption. In subacute bronchitis, such a remedy would be in place.

For winter residence, Dr. Huntt regards the upland parts of South Carolina, Georgia, and Alabama, especially the pine forests, as the best which the United States can afford. He might have added the interior of Florida as milder, perhaps, than either.

We cannot too strongly insist to all who are interested in the matter, on the great necessity of an *early* change of climate, when such a measure is thought of, either to prevent or cure phthisis. And in this malady, we mean its tubercular variety, is in part the effect of a rigorous and variable climate, all who are predisposed, should make a timely and permanent escape to a milder region. Of what advantage can it be to go south with cavernous lungs, or indurated lungs? The

time for action is before disorganization of structure has taken place—afterwards, a little arrest of the fatal stroke is all that can come from flight.

ART. II.—*Account of the Epidemic Yellow Fever which prevailed in New Orleans, during the autumn of* 1833. By E. H. BARTON, M. D.—The circulation of our journal is in the West, and all the West is connected with NEW ORLEANS. Every thing which relates to the climate and diseases of this modern Alexandria, is of interest to our readers, and we thank Dr. Barton for having sent us a copy of the pamphlet, which, for want of space in the department of Reviews, we are obliged to introduce under our Analytical head.

"New Orleans is situated in latitude 29° 57′, and longitude west from Washington 13° 9′, on the left bank, and in a large bend of the Mississippi. It is ten feet and a half above the level of the sea, from which it is distant in the course of the river about one hundred miles, about sixty miles in a south west, and about forty in an eastward course. Five miles north of it is Lake Ponchartrain, which receives the drainage of the city and superfluous waters of the vicinity through the Bayou, St. John, &c. The inclination from Levee street in front, to Rue Marais in the rear, is about eight feet three inches. The city is fanned by the delightful sea breeze from the south west every morning, which is the harbinger of health whilst the prevalent wind. The river rises about fourteen feet, and generally reaches its maximum elevation late in March or early in April. The level of the city is several feet below high water mark, and it is protected from inundation by an embankment or levée three feet and a half high, which extends about five miles along the river, and about two thirds of a mile back to the swamp. The city is built upon a soft alluvial soil, but a few feet above the water in the wells, (dependent upon the state of the river,) the dampness is consequently very great; the streets are filthy, and but partially and badly paved. In the body of the city, (1-24th of the whole area,) water is made to run constantly along the gutters from the river to the swamps during the summer. In 1830 the city contained about 46,310 inhabitants, exclusive of a floating population during the winter and spring months of from 15 to 20,000; increasing on an average of near 2½ per cent. per annum, and hence containing in 1833, 53,234, making altogether about 70,000 inhabitants." p. 3.

Dr. Barton has appended to his Account an elaborate meteorological register for each month of the year 1833, from May to December inclusive; but as we are not furnished with similar tables for other years, the present can only be of value

hereafter, when by his own, or the industry of other observers, corresponding observations shall be made. Thus we are at a loss to know, in what respect the summer and autumn of 1833 differed from those of other years, and, of course, unable to decide how far the epidemic he has described depended on the sensible qualities of the atmosphere.

In January, February, March and April preceding the yellow fever, the prevalent diseases were decidedly intestinal, such as diarrhœa and dysentery, with many cases of epidemic cholera. In May the tendency to the last was still more apparent. By the beginning of June this pestilence was prevalent and reached its height on the 8th.

"When there occurred a heavy fall of rain, with much thunder and lightning, soon after which the wind veered round to the S. W. and W. the disease gradually declined. The epidemic strongly impressed its character upon most diseases of the month, uniting its symptoms with those of other diseases, as cramps, or rice water discharges, with ordinary symptoms of bilious fever—or the peculiar coldness, or the vomiting, with a *great* and *indeed* excessive sensibility of the *alimentary canal*, with liability to run into diarrhœa upon the least change of temperature or transgression in living. This disease was indiscriminate in its attacks, with regard to age, sex, or color, selecting those whose equilibrium of constitution was deranged or thrown from its balance from intemperance or imprudence of *any kind*, or from change of diet—*always* however with premonitory diarrhœa, ranging in its duration from six to forty-eight hours, and running into collapse in from three to twenty hours. The disease finally lost its intensity and prevalence with the changes in the condition of the atmosphere." p. 4.

In July, the city became "pretty healthy," with a great tendency, however, to bowel complaints, and the occurrence of bilious fever, under exposure to changes of weather.

The month of August was not in its average heat quite so warm as July, but the quantity of rain, 8.17 inches, was nearly three times as great, and the thermometer rose to 81, 2, 3 and 4 degs. at midnight, for a part of the month, which was unprecedented.

"Before the middle of the month the wind got round to the eastward, and continued blowing fresh with a high thermometric range, the weather very oppressive and showery, and from the streets there arose a very offensive odour. In the second week the yellow fever

broke out, and continued increasing until it reached a daily average of thirty cases. Its type was most malignant, with great determination to the head." p. 5.

In the month of September the disease gradually became more mild and manageable, and towards the end, intermittent fevers, diarrhœa and dysentery made their appearance, and blended their symptoms with those of the declining epidemic.

Through the month of October and November it continued slowly to abate, and in December bronchial irritation and inflammation, were the prevalent diseases with a few cases of scarlatina and cholera.

"As precursory to the dreadful scourge which followed, it becomes me to mention several enlargements of the inguinal glands, occurring without the least suspicion of venereal contamination, similar to those mentioned by authors as premonitory of the existence of mortal epidemics; also several cases of menorrhagia. The streets throughout the city were filthy, exhaled a peculiarly offensive odour after rains, and generally so at night. There was much sickness with horses, cattle, and swine in the country.

"The country throughout was unusually sickly; crops fine; fruit bad. Weather during autumn beautiful, air cool, delightful atmosphere, exhibiting the brightness of an Italian sky, as has been so often remarked during our severe epidemics; early and severe frosts, which destroyed near one-third of the brilliant prospects of the husbandman, combined, with other causes, to make the year the most disastrous, we have ever experienced.

"From the preceding succinct and general medical and meteorological history of the year, it cannot have escaped attention that the precursors of the malignant epidemic of the season were gastro-intestinal affections of every grade and severity, from simple extra-sensibility of the gastro-intestinal mucous membrane, to the malignant cholera running its course in six hours. The evils resulting from this epidemic constitution of the atmosphere, and the predisposition to the malignant yellow fever that afterwards occurred, was greatly aggravated by the adoption of the advice so generally given, to live high and drink freely of brandy, &c. to prevent an attack of cholera." pp. 6—7.

Our author divides the cases of yellow fever which fell under his observation, into three classes.

"Class I. *The Congestive.*—The attack is sudden, the patient is at once prostrated and overwhelmed; there is dull pain in the head; questions are answered with difficulty; skin bronzed; eyes red and muddy,

like one drunk; pulse weak, soft, or natural; tongue with red edges or natural; extremities cold, and skin generally so, except the central portions of the body, which are preternaturally hot; pain and oppression in epigastrium; appearance of great anguish, or insensibility; the patient lying uncomplaining on one side or back as if but little ailed him; stupor; pupils enlarged; hæmorrhages. Reaction slow, and requiring much, but cautious, depletion to open the condition.

"Class II. *The open inflammatory form.*—This was the most usual, it commenced generally with a chilliness, followed by violent pain in the lower part of the forehead, just below the eyebrows, and in the back and loins; high fever; pulse from 100 and 125; tongue white with red edges; eyes inflamed and blood-shot, with the peculiar muddy, idiotic expression, with great sensibility of the stomach, and ardent desire for cool drinks; tenderness and tension in epigastrium, running through regular stages.

"Class III. *Simple form.*—This class differs but little from the preceding, except in the general mildness of the symptoms; the pain in the head is more diffused and general; not much or severe pain in back or extremities; the tongue sometimes loaded, edges red and fleshy, and still great sensibility of the alimentary canal to medicines; the type easily recognised by the peculiar expression of the eyes, not so red and injected, but dull and muddy, occurring mostly in the latter part of the season, or in those accustomed to a southern latitude, in whom the predisposition was not strong, and acclimating mild."—pp. 9–10.

We have not space to follow our author through his analysis of the symptoms, and shall limit ourselves to the annunciation of his conclusions on the pathology and therapeutics of the disease.

"From the foregoing observations and physiological explanation of the symptoms, we presume the following corollaries will be admitted, viz:—

"1st. That there are *general symptoms* of *inflammation.*

"2d. That there are symptoms of specific or *local inflammation.*

"3d. That the *primary seat* of this inflammation is in the *stomach.*

"4th. That other organs are but *secondarily* affected, as the brain, liver, &c. Upon this pathology we lay the foundation of our treatment.

"Let us proceed then to the exposition of the principles simplified by this view of the subject, and reduced in it its indication, to—

"1st. Controlling or subduing the general inflammatory disposition of the system, produced by the primary influence of the disease on the most susceptible organ, and one having the greatest range of sympathies.

"2d. Subduing that inflammation itself; and—

"3d. Removing its sympathizing consequences in the organic system, and system of relation.

"The 1st is accomplished by general bleeding.
"The 2d by local bleeding, by cooling drinks, &c.
"The 3d by local detractions of blood, by cold ablutions, ice muciages, aperient medicines, enemata, pediluvia, and fomentations, &c." —pp. 13–14.

We deem it unnecessary to follow our author through his defence of the treatment here proposed. His reasonings are those of the physiological school, of which, as we have made known on a former occasion, he is one of the most able and zealous disciples, who have as yet put forth the results of their experience in the Valley of the Mississippi. Nor shall we analyze the nine cases, which he has detailed, but proceed at once to the results of his practice:

"Recovered, 69. Died, 6; of these, 1 died from imprudent and unauthorized use of the glyster-pipe by the nurse, after every appearance of recovery. 1 died from hæmorrhage of the gums, in consequence of having taken a large dose of calomel before I was called. 1 died from want of proper attendance—no nurse; room over a nine-pin alley, the noise of which prevented his sleeping at a critical time. 1 from relapse, brought on by strong soup taken on the eighth day."—p. 36.

Well! this must, we think, be acknowledged, by all, to have been successful practice. Six fatal out of seventy-five cases—only one death to twelve and a half recoveries, in a malignant yellow fever—is honorable success—as great success as ought ever to be expected under any plan of treatment. As the method pursued by Dr. Barton, does not seem to have been followed by all the medical gentlemen of New Orleans, we should be much pleased to see an account of the success of the mercurial and purging plans, that we might be fully satisfied as to their comparative efficacy. That of our author is manifestly the least offensive to the patient, and if attended with equal benefits ought to be preferred. We are advocates for the guidance of principle; but medicine is an *a posteriori*, not an *a priori* science, and the correctness of its principles, can only be determined by experiment.

A zealous reformer, Dr. Barton is not content with stating the results of his own method of treatment, but through 12 or

15 of his last pages considers with argument and sarcasm the value of other modes of practice, classing them under three heads—1st, the Mercurial; 2d, the Purgative with moderate bleeding; 3d, the West India or French, by ptisans, diaphoretics, &c. We have read these pages with some attention, but cannot say that we entirely co[illegible]ur with him, in the views which he presents. In reasoning ag[illegible]nst calomel and cathartics, his data are drawn much more from their abuse than their judicious employment—from their being *substituted* for general and local blood-letting, instead of being used *after* a due resort to those antiphlogistics. When thus preceded, we regard them as not only safe but beneficial. His prohibition proceeds on the assumption, that if there be gastro-enteric inflammation, they *necessarily* do harm in every stage; but we consider them as injurious, only in the early and acute periods of the disease. After the bloodvessels have been emptied to a proper degree, we presume them not merely innocent, but well calculated to finish the cure, by the removal of irritating matter from the *primæ viæ*, repleting the portal circle, depurating the blood, diverting from the head, and superseding the dangerous morbid action, with their own specific and temporary excitement; none of which salutary effects can, however, be obtained while the bloodvessels are plethoric, and the powers of the heart inordinate.

Notwithstanding this difference of opinion with our respectable author, we confess ourselves much pleased with his monograph of the epidemic of 1833. It evinces great industry, an industry which, it has been too often affirmed, is not practicable in hot climates, and the materials are put together with a skill and taste, which presage future labours of much merit. We learn by the title page, that the author is professor of Materia Medica, Therapeutics and Hygeine, in the Medical College of Louisiana; an institution of which we have as yet scarcely heard any thing, and concerning which we should be happy, to be enabled to say something in a future number of this Journal.

III.—*Malformation of the Thorax.*—Dr. INGELS, of Kentucky, has given, in the Transylvania Journal, a statement of the following singular malformation of the thorax, in a negro child, which died at the age of eighteen months; during which its general health was good, although the abnormal structure was constantly increasing. It appeared to die of suffocation, gradually induced.

"The peculiarity of the case consisted mainly in an apparent effort, on the part of nature, to separate the cavity of the chest into two apartments—an anterior and a posterior. This was measurably accomplished by a very extensive incurvation of the nine or ten superior ribs, on each side; so that, at the distance of about one third of their length from the sternal ends, (the point of greatest indentation,) their internal surfaces were very considerably approximated. But the division was rendered much more complete by large cartilaginous tubercles, of a semi-spherical form; one of which was based upon the point of the internal convexity of each curved rib. These tubercles were ranged in vertical rows, one on each side, and equidistant from the sternum. They presented a singular and beautiful appearance; and when discovered, the case assumed a new and more interesting character.

"The heart presented itself immediately to view, when the sternum was elevated. It occupied the anterior chamber, to the exclusion of the lungs; these being thrown into the posterior, were not brought into view, until the heart was partially removed, and the approximated ribs forced wider apart. As the heart was relatively large, and the pericardium contained about three ounces of a serous fluid, they quite filled up the front cavity. The cavities of the heart, in this instance, might have been very appropriately designated by the terms, right and left; for the apex of the organ pointed to the sternum, while its base looked to the vertebral column. Both the lungs and heart were in a healthy condition; the right cavities of the latter were more than usually distended, and the lungs were very much engorged with blood.—There was, however, the utmost disparity in volume, between the heart and lungs—the latter being exceedingly defective in size. The abdominal viscera were examined; they appeared to be healthy; the spleen only seeming to be preternaturally firm, and like the liver in appearance. It was, however, very obvious, that the abdominal viscera, generally, were out of all proportion to those of the chest. There was as much relative disparity between them, as was observed between the heart and lungs. The liver was astonishingly large; the mesenteric glands in particular were very numerous, and of great comparative magnitude. The stomach was unusually capacious, and I have, since the examination, thought that the small bowels were uncommonly voluminous."—P. 488—9.

IV.—*Strichnine Locally Applied in Paralysis.*—In the N. A. Archives, for March of the present year, Professor Smith, of Baltimore, has given the following case:—

"Two years since, a seaman was received into the Baltimore Infirmary, laboring under paralysis of the exterior muscles of the left leg. He stated that, some days before, he had received a blow on the anterior part of the thigh, which had produced contusion and consequent soreness of the muscles. The immediate effects of the injury soon passed away, but there supervened an increasing sense of weakness in the member, which soon terminated in paralysis. The muscles on the anterior part of the thigh now felt soft, relaxed, and flabby. When the patient carefully kept the leg perfectly extended upon the thigh, he was able to bear his weight upon the member; but whenever he flexed it in the slightest degree, in attempting to walk, the leg was instantly doubled under him, and, if he trusted to it for support, he fell. When he was seated in a high chair, and the leg allowed to hang downward, he had no power to swing it forward.

"This man had been laboring under some slight gastric disorder which appropriate remedies had relieved. I could detect no evidence of spinal irritation. The local affection appeared to exist alone. Stimulating frictions were resorted to with but little effect. The cold douche was also tried with as little benefit. I then directed a small blister to be applied upon the anterior part of the thigh, near its middle. When vesication had been produced, the cuticle was removed, and one fourth of a grain of strichnine applied to the denuded surface. This was done in the evening. In the course of that night the patient was waked by involuntary spasmodic twitches of the diseased muscles, occurring at frequent intervals, and rendering it impossible for him to keep the limb quiet in bed. This continued at intervals during the night. In the morning, when the patient rose, he found, to his surprise, that he had now the power of extending the leg upon the thigh, and of securely standing and walking, although the member had not recovered all its natural power. On the following evening I directed the application to be repeated. The same involuntary movements did not recur, but further improvement took place in the contractile power of the muscles. This improvement, without further resort to the remedy, continued to progress, and in a few days the natural strength of the member was perfectly restored.

"The result of this case has induced me, in several cases of local palsy, to resort to the same remedy, but I have by no means been equally successful in such. In one case, however, of paralysis of the left arm and fore-arm, partial success was obtained. The same involuntary twitches of the muscles took place in this case, attended with some pain." p. 386–387.

VI. *Treatment of Inverted toe Nail.*—In the Clinical paper from which we have made the foregoing extract we find the following practical directions for the cure of inverted toe nail.

"In the treatment of this affection, let the surgeon first carefully consider the cause, and endeavor to effect its removal. This I have accomplished by interposing between the toes, at their roots, a cylinder of soft rolled linen—perhaps a third of an inch in diameter, or as large as may be necessary to keep the extremities of the toes from pressing upon each other. A shoe is to be worn which shall give abundant room for the toes to expand, but furnish snug support to the instep; for a shoe which is altogether loose upon the foot, will allow the toes to be pushed forward upon the toe of the shoe. The patient must also wear stockings which shall not in the slightest degree compress the toes. If the disease be not far advanced, the parts being relieved of the cause, will soon spontaneously assume their healthy condition. But if there be morbid granulations rising, in which the border of the nail is buried, and this last appears to be creating great irritation, it is necessary to gently raise the border of the nail by seizing the corresponding anterior angle with forceps, and then, with delicate scissors, the free lateral margin which will be found macerated, white, soft, and brittle, should be cut away. To the granulations the nitrate of silver may be applied. The toe-nail should now be scraped thin upon its dorsum, and the patient should be directed every day to lift the border of the nail. I have found no advantage in thrusting anything under the nail to keep it raised, but have seen such substance cause much irritation." p. 390–1.

VII. *Death of Dupuytren.* We copy from the *Boston Medical and Surgical Journal* the following notice of the distinguished Surgeon:

"This very distinguished operator died in Paris on the 8th of February, after a lingering illness of seven months, aged 57. He has left the reputation of being the first operating surgeon in France, and probably in Europe. Domestic affliction preyed upon his mind for the last few years of his life. He has left Madame Beaumont, his only daughter, a fortune of nearly 7,000,000 franks, besides a legacy of 200,000 francs to found a chair of medico-chirurgical pathology. He has also left 100,000 crowns to found an asylum for twelve aged physicians. The annals of surgery do not afford the name of an individual so extensively known; and it is doubtful whether any man has existed who has performed so many operations in surgery, or who has exerted a greater professional influence throughout the civilized world."

III.—ORIGINAL.

The Western Journal.

E Sylvis Nuncius.

CINCINNATI APRIL 1 1835.

I. MEDICAL JOURNALS.

In the month of January 1833, the Faculty of the Medical College of Ohio, commenced a semi-monthly Journal, under the title of the *Western Medical Gazette*, which after the 18th number was suspended for several months. Being revived, it will be continued to the completion of the second volume, when the proprietor, having taken an interest in the publication of this Journal, will discontinue that periodical, and add his subscription list to our own. His subscribers, will, therefore, be supplied with the first number of the next volume of this work, and such of them as retain it, will be considered subscribers to the Journal. By this union our subscription list will be augmented, and we shall feel under renewed obligations to Editorial exertion.

The *publishers* will hereafter be medical gentlemen; and it will be their aim and ambition to render the Journal every way commensurate with its increased patronage, and extended circulation in the Valleys of the Mississippi and the Lakes. To this end, they propose to make every practicable effort to engage the services of such medical gentlemen in the West, as by their experience in the treatment of its diseases, are qualified to communicate valuable information. By the way, why

do not a greater number of our physicians record and publish the results of their practice? The habit of writing is one of the most beneficial which a medical practitioner can form; and we cannot but regret that it is not more cultivated, not merely on this account, but because of the necessity of more writers, to give a full exhibition of our medical topography, climate, peculiar diseases, and medical botany. We shall always be most happy to publish both the speculations and experience, of our Western brethren.

II. Medical College of Ohio—New Board of Trustees.

The General Assembly of Ohio have at length opened their eyes to the "low estate" of their Medical College, and appointed a new Board of Trustees, consisting of the following gentlemen:

William H. Harrison
Morgan Neville
John C. Wright
William S. Hatch
William Burke,
William Stevenson
Calvin Fletcher
A. H. Dunlavy, of Lebanon
Dr. Laomi Rigdon, of Hamilton
" Joseph S. Carter, of Urbana
" Samuel Parsons, of Columbus
" John Cotton, of Marietta
" Alexander Campbell, of Ripley.

III. Aphthous Sore Mouth in Adults.

The following cases, contained in a letter from Dr. E. Gaston, of Morristown, Ohio, to Dr. J. C. Bennett, have been transmitted to us, for publication. We hope they will not be found withot interest by the younger members of the profesion.

"Agreeably to your request, I send you an account of some of the cases of aphthous sore mouth, occurring in adults, that have fallen under my care.

The first case that came under my notice occurred in

March, 1827. The subject of it was a female, of, I suppose, about twenty-five years of age. At the occurrence of the disease she had been confined in the puerperal state, about two weeks; during which time she had been under the care of Doctor A. When her mouth got sore, she became dissatisfied with him, alledging as the cause of her dissatisfaction, that he had given her mercury without her knowledge, and had salivated her. The doctor protested that he had not given her a particle of mercury in any shape, and professed entire ignorance of the cause of her mouth becoming sore.

He prescribed for her mouth, assiduously, for some days; but finding that all his local and constitutional means did not arrest the disease, and his patient becoming daily more dissatisfied, he, in order to satisfy her, and to remove the imputations with which she branded him, proposed to have me called in to see her, which was accordingly done.

On visiting her, I found her in a truly distressing situation. Her mouth was covered on the inside with aphthæ; lips and tongue considerably swollen; stomach irritable, with frequent fits of vomiting; bowels irregular, sometimes constipated, at others profuse diarrhœa; countenance haggard, and expressive of extreme anxiety; emaciation great; debility such that she could not turn in bed without assistance; and in addition to all her other sufferings, she was, an hour or so before I first saw her, attacked with a profuse hæmorrhage at the nose.—Such was the state of our patient at the time I first saw her; and she attributed all her sufferings at that time, to the state of her mouth.

Treatment.—We applied a blister to the back of her neck, in order to arrest the hæmorrhage, and prescribed a dose of calcined magnesia with rhubarb, to clear the bowels of their acrimonious contents. After the cathartic had operated, we prescribed the following course of tonic, alterative and local treatment. *Tonic:* Take cinchona and elixir vitriol, each ℥1, water 1 pint; mix; dose, ℥1 four times a day. *Alterative:* Take 6 gr. pill hydrarg. every other night; to be worked off next morning, by a portion of calcined magnesia and rhubarb.

Local: Take honey any quantity, and add to it as much muriatic acid as will make pleasantly sour; take a large teaspoonfull, and let it dissolve in the mouth, every three hours; and rinse the mouth out well with a strong decoction of cinchona three times a day. Diet light and nutritive.

On examining her mouth three or four days after my first visit, I discovered that a large slough had come out of her left cheek; but the appearance of her mouth otherwise was much improved. The above treatment was continued, during her recovery—which was rapid and permanent. In two weeks her mouth was well, and her strength so far regained that she could set up an hour or so at a time.

Case 2nd. Occured May, 1829. The subject of this case was a female aged 30 years. She informed me, that for some time previous to her mouth becoming sore, she had been very much harrassed with dyspeptic symptoms, such as loss of appetite—pain and swelling of the stomach after eating—sour and fœtid eructations—irregular bowels, &c.; which symptoms she attributed to travelling, change of water, &c., (as she had but lately emigrated from Louden co. Va.) At this time, her lips, cheeks, and edges of the tongue were covered with white vesicles—centre of the tongue of a dark cherry red color—discharge of saliva profuse and very fœtid. She said that her mouth had been sore for four or five weeks—and if she had taken any medicine, she would have been sure that she had been salivated; but as it was, she was satisfied it could not be the effect of mercury. She had tried every thing that she could hear of, in order to cure it, but all her remedies had proved unavailing. After the aphthæ remained a few days, they would fall off, and then for a short time her mouth would appear to improve, but a fresh crop would arise, and then matters would be as bad as ever.

Treatment. Take 6 gr. of pil. hydrargyri every night, and as much calcined magnesia with rhubarb every morning as would open the bowels gently, if the blue pill failed in doing so. As a gargle I prescribed the following: Take sul. zinci ʒi. water half pint, mix. Wash the mouth out with it frequently through the day.

In about a week I had the satisfaction of seeing her comparatively free from all complaints; and a perseverance in the same course for a week longer, effected a cure.

Case 3d. February 27th, 1830. I was requested to visit Mr. E. B. On arriving at his house, he informed me that on the 25th he had gone to a circular fox-hunt; the day was very cold and raw, and the duties he had to perform, required him sometimes to walk till he was very warm, and at others to stand till he would get very cold; in consequence of which he caught cold, and was attacked with symptoms of pleuritis that night. But as he had had similar attacks previously, and had relieved himself by using his own domestic remedies, he thought it unnecessary to apply to a physician for it. But on the night of the 26th he discovered that his mouth was swelling and felt sore—which continued to increase till morning—at which time the saliva literally ran from his mouth, and was so fœtid that he could scarcely endure the smell of it himself. His mouth becoming so sore, he said, had alarmed him, and induced him to send for me. He attributed it to a dose of calomel that he had taken ten years previous to that time, which he thought had lain dormant in his system till he caught cold, and was now venting its fury in salivating him. His lips, cheeks and tongue were considerably swollen, and covered with aphthous spots—flow of salvia still profuse and fœtid—pleuritic symptoms still bad.

Treatment. For his pleuritic symptoms, I prescribed the common remedies. For his sore mouth, a watery solution of sulphate of zinc, which relieved him in a few days.

These cases are given as a sample of the cases of the disease that I have seen and prescribed for. I could have given you the history of a number more, but I think it unnecessary, as the symptoms and treatment in the others correspond with these. In these I have advanced no opinion as to the pathology; all I aimed at doing, was to give a correct history of the symptoms and treatment, and let every one draw his own inferences as to the pathology."

IV. Cure of tubercular Consumption and Scrophula.

We give the following extract of a letter from Dr. H. H. Sherwood, formerly of the state of New-York, now a resident of Hamilton, in this state, with the single remark, that he is a Physician of regular education.

"I have been investigating the subject of Tuburcula, or what is called Scrofula, for more than a quarter of a century, and in 1812 found new and unerring symptoms by which I could detect the disease in any part of the system, and also found remedies that cure all the cases in every part of the system and in all its stages, with a few exceptions of extensive disorganization and loss of substance.

All the cases with these exceptions, commence getting well in a few hours after the patients begin the use of the remedies, and this operation continues and cannot easily be diverted from its course until the disease is cured, and with a few exceptions they are all cured in from three to seven weeks. It never produces any disagreeable or injurious effects upon the stomach or bowels, or any other part of the system and dieting never necessary or proper.

I have now used these remedies for the cure of this disease in every part of the system; and have gradually increased their power until they have now, and have had, for a number of years past, all the efficiency that can be expected or perhaps desired; and having with many others satisfied myself that there cannot possibly be any mistake, either in the symptoms in any part of the system or in the remedies for its cure, I am anxious to extend their benefits as quickly and as widely as possible, for the purpose of lessening the great loss of human life by this disease.

In investigating this disease by the symptoms, which unerringly point to it in every part of the system, it will not surprise you to hear, that there are many diseases in the different parts of the system that are really, but rarely if ever suspected to be tubercular, and aware of your exertions, experience, and success in extending the benefits of the science of

medicine, I am anxious to avail myself of your advice as regards the best and most proper manner of communicating to the profession its true phenomena, symptoms and remedies.

I have occupied my leisure hours this winter, in writing a short description and history of the disease, with a description and cause of their new symptoms; and besides have copied nearly fifty cases affecting different parts of the system, with a view of publishing a small work of 150 or 200 pages duodecimo, which will be ready for the press in two or three weeks, and as it is not necessary to my purpose to wade in the labarinths of supposition, it appears to me that a work of a larger size would be unnecessary."

V. Willoughby Medical School.

A new Medical institution has been lately projected at Chagrin, on Lake Erie, in this state, under the auspices of Willoughby University, of which the Rev. E. F. Willey is President. Lectures were delivered last winter to a class of 25 or 30 pupils; and, as we learn from the public journals of that part of the state, the degree of Doctor of Medicine was conferred on six young gentlemen.

We have also learned, through several different channels, that the Trustees of the Western Reserve College, at Hudson, in the same region, have resolved to institute a Medical Department. Thus the low condition of the Medical College of Ohio, produced by "the Cholera," has driven the people into the necessity of attempting to establish other and better schools.

We do not doubt that, on the shores of Lake Erie, in the eastern part of this state, there will, ere long, be a respectable school; but we should suppose, that Cleveland, from its population and the facility of intercourse between it and Michigan, Upper Canada, the N. W. parts of Pennsylvania, and the S. W. of New York, would be a more elegible point, than either of those selected; and we would respectfully suggest to to the profession on the Western Reserve, to exert them-

selves in effecting a concentration upon a city—which is evidently destinued to become one of the most important in the West.

VI. Medical Graduations.

At the late public Commencements, the degree of M. D. was liberally conferred.

The number of graduates in Transylvania University was 82: in the University of Pennsylvania 130: in the Jefferson Medical College 58: in the University of Maryland 50.

The Medical College of Ohio, sent forth 27. Of whom one was lately a "steam doctor," and other a graduate of the University of Pennsylvania, who, not having faith in the permanence of our ancient Alma Mater, as she has lately had some slight convulsions, thought it prudent to obtain the diploma of a Faculty, which promises to enjoy great stability.

VII.—Carpenter's Compound Extract of Sarsaparilla.

This is a portable and elegant preparation of the ingredients (with some variation) of the celebrated Lisbon diet drink; and as such we beg leave to commend it to our country readers. It has been found, by such physicians of this city as have prescribed it, a valuable remedy in rheumatim, a variety of chronic diseases of the skin, old ulcers, subacute periostisis from mercury, and, with the addition of corosive sublimate, in secondary syphilis.

Mr. Carpenter is one of the most scientific pharmaceutic chemists of Philadelphia. His preparation may be had of all our respectable druggists.

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One of the most cheap and convenient galvanic machines, for medicinal purposes, is that invented by Volta, and denominated *Couronne de Tasses*, on which some slight improvements

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Died, at Fort Gibson, Arkansas Territory, on the 30th of January last, Dr. Samuel Watson Hales, Assistant Surgeon, in the United States Army.

As this young gentleman was our private pupil, nearly up to the time of entering the Army, we cannot forego the melancholy pleasure, of recording our testimony to his merits.

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In the winter of 1831–2, he attended a course of lectures in the Medical College of Ohio; and in the following summer, resolving to commence the practice of his profession, he settled in Louisville. A previous desire to enter the army, however, made him look upon that settlement as temporary; and, accordingly, it was not long before he succeeded in obtaining an order to repair to Jefferson Barracks, for a probationary examination before an army Medical Board. The result was his appointment by the Secretary at War.

During his pupilage, the conduct of Mr. Hales was characterized, by diligence, ambition, enterprize, general propriety and great pride of character; qualities which seemed peculiarly to fit him for the military or naval service.

Immediately after his appointment, he was ordered on the ill-fated expedition, against the Indians high up the Arkansas river; and placed in situations, which at once devolved upon him the duties and responsibilities of a regimental surgeon. The medical history of that unfortunate and disastrous cam-

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"I started from Camp Canadian, from which my last letter was dated, on the 9th inst. the following Sunday, and arrived here on Wednesday about noon, having met a second express coming for me. Upon my arrival I found this camp in a most miserable situation; out of about 98 men 85 were sick, there was no surgeon, and but little medicine. The assistant surgeon who had been here, had departed a few days before, because it was reported that I was to be here.

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kets, one to keep the dampness from the ground, the other in the night to cover and protect them, from the cold; who can expect to treat diseases with success, or who, when attacked, can expect to recover. I have witnessed scenes of misery and woe, but never have I witnessed any thing to equal this. I have urged repeatedly, that this Camp should be removed, but the Colonel says it cannot be done. The men, when once they recover, are, with few exceptions, re-attacked. One more effort I will make for this Camp to be removed, and if it is not, then I must submit. But it is discouraging, indeed, so much so, that I now take but little pleasure in prescribing; and, although I feel that the lives of many depend upon my bearing up, yet I cannot feel cheerful nor hardly attempt to cheer up others. I have been writing until I am fatigued, and have now, the second time to day, to examine and prescribe for 112 men, besides 5 officers, though I feel like lying down myself."

Shortly after this letter was written, Dr. Hales was taken down with the prevailing fever. His attack was protracted, and terminated in dysentery, which assumed a chronic form. With the return of the expedition he was brought back to Fort Gibson, where he lingered till the 30th of the succeeding January, when he expired; having in the brief period of his early professional life, performed a greater amount of arduous duty, and endured greater sufferings, privations and anxieties, than fall to the lot of the private practitioner in the course of several years.

AN ESSAY

ON THE

STRUCTURE, FUNCTIONS, AND DISEASES

OF THE

Nervous System.

DEFENDED BEFORE THE MEDICAL FACULTY

OF THE

UNIVERSITY OF PENNSYLVANIA,

MARCH 14, 1828,

FOR THE DEGREE OF

DOCTOR OF MEDICINE.

BY JOHN R. W. DUNBAR, A. M.

OF VIRGINIA.

RECORDING SECRETARY OF THE PHILADELPHIA MEDICAL SOCIETY.

"Non scribo hoc temere. Quo minus familiaris sum, hoc sum ad investigandum curiosior.—*Cic. ad Familiar. Epist.* xiii. *Lib.* iv.

Philadelphia:

J. DOBSON, No. 108 CHESNUT STREET.

MIFFLIN AND PARRY, PRINTERS.

1828.

E. L. Dunbar,
Attorney at Law,
Juniata County,
Penna.

TO

JOHN BELL, M. D.

LECTURER ON THE INSTITUTES OF MEDICINE, AND MEDICAL JURISPRUDENCE, IN THE PHILADELPHIA MEDICAL INSTITUTE, &c.

My Dear Sir:—

To no one can I dedicate this Essay with so much propriety as yourself: from you have I imbibed a taste for the subject, and to you am I indebted for many valuable suggestions with regard to the manner of treating it. But these are the least of the numerous favours which you have conferred on me, and I am proud to take the only means in my power of thus publicly expressing my acknowledgments. During the whole course of my professional studies, I have received from you the kindest attentions. Our relationship has not been the formal one of preceptor and pupil, but rather that of brother and of friend; and ever will it be my study to show a grateful sense of your kindness, although I can scarcely expect to make an adequate return.

Be pleased, Sir, to accept my best wishes for your health and happiness, and for your continuance in a prosperous advancement to the most elevated rank in our profession, which, in this country, sooner or later, is the reward of talents and industry such as you possess.

Your obliged friend,
And grateful pupil,
JOHN R. W. DUNBAR.

TO

PHILIP SYNG PHYSICK, M. D.

PROFESSOR OF ANATOMY, IN THE UNIVERSITY OF PENNSYLVANIA, PRESIDENT OF THE PHILADELPHIA MEDICAL SOCIETY, &c.

Sir: The feelings which prompt me to address you also on this occasion, are ambition and gratitude. The first of these sentiments is amply gratified by dedicating this Essay to the favourite pupil of the great Hunter, and the 'Father of American Surgery'—Nor am I less impelled by the second to present my thanks, for the kind and hospitable treatment I have received from yourself and family during my residence in this city. In the approbation you have been pleased to express of this production, I cannot but see an additional evidence of your kindness.

That you may continue a blessing to our country, and in the enjoyment of the pleasing reflections arising from the consciousness of a long and virtuous life, marked by the noblest achievements of our art, and the consequent alleviation of the miseries of your fellow men,

Is the ardent wish of

THE AUTHOR.

INTRODUCTION.

The present age is remarkable for the great advances that have been made in the Science of Medicine. The last century has almost entirely changed its character; reducing a mass of Galenical theory, and scholastic speculation, to regular philosophical system, based on the study of structure, and inductions therefrom. But in the wide range of Medicine, there has been nothing marked by greater improvement, than the study of the Nervous System. This, from its real or imagined connexion with mind, has always attracted the greatest attention. For more than two thousand years, from Aristotle to Gall, has it been the subject of continual study and meditation. The most celebrated geniuses in Medicine and Metaphysics, who arose and impressed the stamp of their minds on the doctrines of their age, all in succession applied their powers to explore the Egyptian darkness that hung over this subject. They felt the strong and elevating impulse of the superior *mind* with which they were gifted, and falsely imagined *it* competent to explain its own essence, and wonderful operations. Many were the hours devoted to investigations into the structure of its material organ, and still more numerous were the volumes composed in attempts to explain the uses of the different parts of this structure. Hence the unmeaning jargon on the *fiberkies* of the brain, the vibratory cords, and the animal spirits, which were so often, and ingeniously repeated, that their inventors at length came to the belief, that by the changes rung on these words of magical sound and but

little import, they had unfolded the mysteries of nervous action. But notwithstanding all their efforts, they more deeply involved the subject, and it has been reserved for our age, and for the last thirty years of it, to make greater advances in the study of the nervous system, than was accomplished in the many centuries preceding.

Among those to whom we are most indebted for their researches into this subject, are the names of Reil, Gall, Spurzheim, and Tiedemann, in Germany; Rolando and Bellingeri, in Italy; Magendie, Flourens, and Serres, in France; and Mr. Charles Bell, in England.

To give a digest of the present state of our knowledge of this system, as derived from their labours, is all at which I aim. I shall endeavour in my attempts to attain this end to reject entirely all theoretical speculations, and confine myself strictly to the relation of what is confirmed by experiment and the observation of pathological changes.

The great desire which I feel to understand this subject has influenced me to choose it as the theme of my Inaugural Dissertation, thereby obeying the injunction of the celebrated Dr. Johnson, "That if a man wished to understand a subject well, he should write a treatise on it."

INAUGURAL DISSERTATION

ON THE

STRUCTURE, FUNCTIONS, AND DISEASES

OF THE

Nervous System.

By the Nervous System is understood to be that peculiar matter of animals, which subserves the important purposes of receiving and transmitting impressions, whence arise sensations, and of performing the functions of intellect.

Physical Appearances of the Nervous Tissue.

Observed in the more perfect animals and in its larger or central masses, we find this tissue to be composed of two substances, differing in colour and consistence; viz: the *gray, cortical* or *cineritious,* and the *white, fibrous,* or as it has been improperly called the *medullary.* The cords called nerves, are composed of a number of minute sheathes of a cylindrical form filled with white pulpy matter, and contained in a tube called neurilema, which is hardened by the action of alcohol and acids. The principal marks of difference between the white and the gray matter are as follows:

The white or proper nervous portion, examined in its most perfect and recent state, after having been hardened by the action of heat and certain chemical substances, and carefully scraped with a blunt instrument, presents the appearance of fibres of a considerable magnitude, with furrows between them. It was this fibrous structure upon which the celebrated French philosopher Descartes founded a great part of his hypothesis of the animal spirits. These fibres are so ar-

ranged as generally to converge to the base of the brain, and it has been questioned whether they unite, forming the commissures, or whether they decussate and pass to the opposite sides of the body. The fact of paralysis occurring on a different side of the body from that of the brain which is injured, would seem to lend support to the latter of these opinions. The gray matter is of a reddish brown colour, of a softer consistence than the white, and in the fœtus bears a greater proportion to the latter than in after life. It evidently contains a great number of blood vessels, and was even maintained by the German anatomist Ruysch to be composed entirely of these with their connecting cellular membrane. It has been asserted by Malpighi that the office of this part is glandular, an opinion advocated by Gall and Spurzheim, who contend that the gray or cortical matter is the "origin and aliment of the white or nervous fibres, by means of which they are reinforced and nourished." With regard to the arrangement and proportion of these two kinds of matter in the nervous masses, we find that the white is in the greatest proportion, and generally occupies the internal part, except in the spinal marrow, where it is external. It predominates almost entirely in the nerves. The gray matter forms a layer of variable thickness on the outside of the brain, but is found also in the interior; sometimes it appears mixed with the white, or they are placed upon one another in alternate layers.

In the ganglia of the sympathetic, the white and gray matters are blended: this appearance joined to a particular physical arrangement of nervous filaments has induced Gall and Spurzheim to extend the term ganglion to those parts of the brain, such as the corpora striata, and of the spinal marrow at its lateral bulging, where the white and gray are intermixed.

Chemical Composition.

The chemical properties of the nervous matter are peculiar, and unlike any of the other constituents of the body; though they are nearly the same in whatever part of it they may

be found. To Vauquelin we are indebted for the latest and most correct analysis of nervous matter. From his experiments it appears that it is a peculiar chemical compound, resembling in some respects a saponaceous substance, and forming an emulsion with water. Its basis is albumen which can be partially coagulated by heat and acids; by the latter of which tests we discover its existence in vegetables. The other constituents are, reddish fatty matter, white fatty matter, osmazome, phosphorus, acids, salts, sulphur, and water. The water, albumen, and whitish fatty matter, are in the greatest proportion.

Intimate Structure.

The intimate structure of nervous matter is found by the experiments of Bauer to consist of innumerable small globules of a cellular texture, and arranged into rows of considerable length forming fibres: their average size is $\frac{1}{3200}$ part of an inch, and they are united by a transparent viscid mucus. The principal differences in the nervous structure consist in the size of the globules, and in the quantity of their viscid mucus. The gray part of the cerebrum and cerebellum is formed of smaller globules, the mucus is more abundant, and the fibres are much less distinct, than in the white portion.*

This structure is found to prevail nearly the same in all animals, even the lowest in the scale of vitality; and it has been asserted by a late eminent French writer (Dutrochet) that nervous matter exists to a certain extent in vegetables, particularly those of the mimosa tribe. As the subject is entirely new and very interesting, I shall devote a few pages to an analysis of his views as presented in his work,† and shall arrange them under the head of Nervous System of Vegetables; premising Dr. Dutrochet's first views and experiments, which were contradicted by some of his succeeding ones.

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* Home's Comparative Anatomy, vol. iii. p. 37.

† Recherches Anatomiques, et Physiologiques, sur la Structure Intime des Animaux et des Vegetaux, et sur leur Motilité. Paris, 1824.

Nervous System of Vegetables.

There is a remarkable analogy of structure between the medullary cellular tissue of vegetables and the substance of the brain of the Mollusca. The globular corpuscles in both are concrescible by acids and rendered soluble by alkalies. The arrangement of globular cells on the sides of which are the whitish corpuscles is nearly the same in both. The analogy is rendered still more striking in those vegetables endowed with irritability. Led by microscopical examinations and the effect of chemical re-agents on the minute globular bodies of the cellular tissue of vegetables, Dr. Dutrochet has called those concrescible by acids, *nervous corpuscles.* The leaves of the sensitive plant are attached to a long petiole, at the base of which is a swelling part designated by the term *bourrelet.* Similar but smaller enlargements exist at the insertion of the *pinula* in the summit of the petiole, and at the insertion of the leaflets into the *pinula.* In these, says the author, resides the moving power of the leaves of the sensitive plant, and in the parenchyma of the *bourrelet* or enlargement of the petiole, is a great number of nervous corpuscles; to exhibit which we must immerse a leaf of this plant in nitric acid, of the temperature of boiling water, for a minute only, and then remove it immediately into pure water. By this operation the leaflets become very transparent, and allow us to perceive by the aid of a microscope, the innumerable nervous corpuscles which have now become opaque; they are extremely minute and grouped around the vessels traversing the leaflets. The minute ramifications of these vessels loaded with the globular corpuscles resemble precisely a vegetable loaded with fruit.

Dr. Dutrochet thinks that the movements in vegetables, usually referred to their irritability, are in fact accomplished by two distinct powers and kinds of organization. To prevent the confusion which has arisen from the use of the words sensation and sensibility in physiology, he proposes that the

phenomenon produced by the impression of external agents on a vital surface, and transmitted by the nerves or nervous tissue, receive the name of *nervimotion*, and while vital property, in virtue of which it takes place, is termed *nervimotility*.

Nervimotility he conceives to be purely a physical phenomenon, which constantly precedes the moral one of sensation; but is not always followed by the latter. Hence our internal organs possess nervimotility; they experience nervimotion; but sensation does not thence result as is the case in our external organs or senses.

The power of executing visible movements, by which parts are displaced, may receive the name of *locomotility*. But this is always preceded by another invisible motion or power of experiencing certain modifications, by the influence of particular external agents called *nervimotors;* the faculty itself being nervimotility.

Dr. Dutrochet has proved by a number of delicate and ingeniously devised experiments, that in the sensitive plant (*mimosa pudica*) and indeed in vegetables generally, the two powers of nervimotility and locomotility are distinct and independent, and evidenced by correspondingly distinct organs. In some experiments he found that by removing the cortical parenchyma of the *bourrelet*, the petiole entirely lost the power of moving, without however the life of the leaf being destroyed. This in connection with other experiments shows that the locomotive structure does not prevail throughout the plant, but is limited to a part of the *bourrelet*. Whereas the nervimotility is diffused throughout the plant, and is called into action by the influence of an external agent. Thus if the sun's rays be directed through a lens on a single leaflet, this immediately bends towards its fellow; the neighbouring ones then meet each other, and the movement is communicated *gradatim*, from above downwards to the base of the *pinula* which bears these leaflets: the other *pinulæ* then bend to each other, and the movement is communicated as before, until

after a certain time the petiole bends. Nor is this all; the other leaves of the branch, above and below the leaf which has been burned, are also thrown into motion successively, and the folding of their *pinulæ* and leaflets succeeds the flexion of their petioles.

There is then evidently displayed a vital phenomenon, anterior to locomotion, and subsequent to the influence of the external cause. This phenomenon is nervimotion, a vital movement invisible, and appreciable only by its effects. To show still farther the diffused nervimotility of the plant, it is only necessary to direct a burning glass on the flowers of the *mimosa pudica:* no external movement is evidenced in them or in their long common peduncle, yet nervimotion is produced; for after the lapse of some moments the leaves of the branch are seen to incline to each other.

Nervimotility does not belong exclusively to the different parts of the stalk of the sensitive plant; the roots also participate in it, as is proved by the following experiments performed by Desfontaines: "If the roots of the mimosa be sprinkled with sulphuric acid, we soon see the leaves of the stalk incline to each other in regular order; those nearest the root beginning first; and then the next, and so on to the end of the plant."

Dr. Dutrochet found, however, on continuing his experiments, that the bark of the plant did not convey the impression of stimuli, or give rise to nervimotion; nor had the medulla such conducting power, but, the organs of this transmission were the ligneous parts of the plant. He draws the conclusion (p. 75-6) that all the portions of the central system which have tubes fitted for the transmission of the sap, are likewise fitted to transmit nervimotion, and between the two processes there is an exclusive and inseparable connexion. There is then, he continues, no doubt but that the transmission of nervous power in the sensitive plant is performed by means of the fluid of the sap. The nervous corpuscles are foreign to this transmission, although they are the generating organs of this power, by means of the influence of nervimotor agents.

The chief exciter of the motility of plants is solar light; so that *insolation* for them is what *oxygenation* is for animals: and *etiolation* has the same bad effects on the former as *asphyxia* on the latter.

ANATOMICAL DIVISION OF THE NERVOUS SYSTEM.

The nervous system is divided anatomically into three grand parts. 1st. The Peripheral, consisting of the nerves, and their membranous expansions: 2d. The Central or Encephalo-Spinal portion, composed of the encephalon and spinal marrow: 3d. The Ganglia or Sympathetic.

It is my intention only to consider the two first divisions, as my limited space prevents any details respecting the last. For the same reason I shall not enter minutely into the anatomy of the nervous system, but dwell more particularly on the functions which it performs.

The nervous system, functionally considered, has been arranged under the two general heads of that for animal and that for organic life. Under the first we class the encephalo-spinal mass, and its ramifications or pairs of nerves; and under the latter, the ganglia, plexuses, and branches of the sympathetic. The former presides over sensation, voluntary motion, and volition, and the latter over nutrition. The animal system is marked by its symmetry and duplicity, and seems to be made of two equal parts in close juxtaposition. The ganglionic, like the organs to which it is distributed, is distinguished by irregularity and want of symmetry.

Formation and Growth of the Nervous System.

In considering the formation of this system in the different orders of animals, we shall find that in the lowest it is very simple, consisting of but mere nervous globules, distributed through an amorphous pulpy mass. As we ascend in the scale, this structure is found arranged successively into